AUTHOR INDEX

A

Abramson, T. *See* Heginbotham, Lu, Abramson, and MacKinnon
Acquotti, D. *See* Poppe, van Halbeek, Acquotti, and Sonnino
Adelman, J. P. *See* Pérez, Lagrutta, Adelman, and Toro
Aerts, T. *See* Xia, Aerts, Donceel, and Clauwaert
Agmon, N., Doster, W., and Post, F. The transition from inhomogeneous to homogeneous kinetics in CO binding to myoglobin, 1612
Agre, P. *See* Golan and Agre
Allen, D. G. *See* Westerblad and Allen
Amador, S. Teaching medical physics to general audiences, 2217
Andersen, C. *See* Nekolla, Andersen, and Benz
Andersen, O. S. *See* Oiki, Koeppe, and Andersen
Anderson, B. D. *See* Xiang and Anderson
Anderson, D. *See* Tsuprun, Anderson, and Egelman
Angerstein, B. *See* Swamy, Angerstein, and Marsh
Aoki, T. *See* Saito, Aoki, Aoki, and Yanagida
Aoki, T. *See* Saito, Aoki, Aoki, and Yanagida
Arts, T., Prinzen, F. W., Snoeckx, L. H. E. H., Rijcken, J. M., and Reneman, R. S. Adaptation of cardiac structure by mechanical feedback in the environment of the cell: a model study, 953
Asai, M. *See* Bessho, Ataka, Asai, and Katsura
Asano, T. *See* Yamazaki, Miyazu, Asano, Yuba, and Kume
Asturias, F. J., Fischetti, R. F., and Blasie, J. K. Changes in the profile structure of the sarcoplasmic reticulum membrane induced by phosphorylation of the Ca^{2+}ATPase enzyme in the presence of terbium: a time-resolved x-ray diffraction study, 1653
— Changes in the relative occupancy of metal-binding sites in the profile structure of the sarcoplasmic reticulum membrane induced by phosphorylation of the Ca^{2+}ATPase enzyme in the presence of terbium: a time-resolved, *Resonance* x-ray diffraction study, 1665
Ataka, M. *See* Bessho, Ataka, Asai, and Katsura
Axelrod, D. and Wang, M. D. Reduction-of-dimensionality kinetics at reaction-limited cell surface receptors, 588

B

Badger, J., Kapulsky, A., Gursky, O., Bhyravbhatla, B., and Casper, D. L. D. Structure and selectivity of a monovalent cation binding site in cubic insulin crystals, 286
Bahar, I. and Jernigan, R. L. Stabilization of intermediate density states in globular proteins by homogeneous intramolecular attractive interactions, 454
— Cooperative structural transitions induced by non-homogeneous intramolecular interactions in compact globular proteins, 467
Balny, C. *See* Lange, Heiber-Langer, Bonfils, Fabre, Negishi, and Balny
Bao, J.-Z., Davis, C. C., and Swicord, M. L. Microwave dielectric measurements of erythrocyte suspensions, 2173
Barbi, M. *See* Petracchi, Pellegrini, Pellegrino, Barbi, and Moss
Barry, B. A. Cramer and Knaff, *Energy Transduction in Biological Membranes: A Textbook of Bioenergetics* (book review), 268
Barry, D. T. *See* Cole and Barry
Barsotti, R. J. *See* Martin and Barsotti
Bartik, K., Redfield, C., and Dobson, C. M. Measurement of the individual pK_a values of acidic residues of hen and turkey lysozymes by two-dimensional ^1H NMR, 1180
Baskin, R. J. *See* Sidick, Baskin, Yeh, and Knoesen
Basser, P. J., Mattiello, J., and LeBihan, D. MR diffusion *tensor* spectroscopy and imaging, 259
Baxter, D. A. *See* White, Baxter, and Byrne
Baylor, S. M., Harkins, A. B., and Kurebayashi, N. Response to Westerblad and Allen, 927
Becucci, L. *See* Moncelli, Becucci, and Guidelli
Begenisich, T. *See* Pérez-Cornejo and Begenisich
Bek, S. and Jakobsson, E. Brownian dynamics study of a multiply-occupied cation channel: application to understanding permeation in potassium channels, 1028
Belknap, B. *See* Walker, White, Belknap, and Trinick
Benz, R. *See* Nekolla, Andersen, and Benz
Berendsen, H. J. C. *See* Leenders, van Gunsteren, Berendsen, and Visser
Bessho, Y., Ataka, M., Asai, M., and Katsura, T. Analysis of the crystallization kinetics of lysozyme using a model with polynuclear growth mechanism, 310
Beyer, E. C. *See* Veenstra, Wang, Beyer, Ramanan, and Brink
Bezanilla, F., Perozo, E., and Stefani, E. Gating of *Shaker* K^+ channels: II. The components of gating currents and a model of channel activation, 1011
— *See* Correa and Bezanilla
— *See* Perozo, Santacruz-Toloza, Stefani, Bezanilla, and Papazian
— *See* Stefani, Toro, Perozo, and Bezanilla
Bezanilla, M. *See* Mastrangelo, Bezanilla, Hansma, Hough, and Hansma
Bhimani, M. *See* Pate, Wilson, Bhimani, and Cooke
Bhyravbhatla, B. *See* Badger, Kapulsky, Gursky, Bhyravbhatla, and Casper
Bielefeldt, K. and Jackson, M. B. Intramolecular and intermolecular enzymatic modulation of ion channels in excised membrane patches, 1904
Binford, J. S., Jr. and Palm, W. H. Absorption of surfactants by membranes: erythrocytes versus synthetic vesicles, 2024
Birnbaumer, L. *See* Lacerda, Perez-Reyes, Wei, Castellano, Birnbaumer, and Brown
— *See* Neely, Olcese, Wei, Birnbaumer, and Stefani
Blankenship, R. E. *See* Lin, Chiou, Kleinherenbrink, and Blankenship
— *See* Savikhin, Zhou, Blankenship, and Struve
Blasie, J. K. *See* Asturias, Fischetti, and Blasie
— *See* Asturias, Fischetti, and Blasie
Bobba, A. *See* Cavatorta, Giovanelli, Bobba, Riccio, Szabo, and Quagliariello
Boland, L. M., Jurman, M. E., and Yellen, G. Cysteines in the *Shaker* K^+ channel are not essential for channel activity or zinc modulation, 694
Boldt, E. *See* Wolf, Rols, Boldt, Neumann, and Teissie
Bonfils, C. *See* Lange, Heiber-Langer, Bonfils, Fabre, Negishi, and Balny
Borchardt, D. B. *See* Goldberg, Lester, Borchardt, and Zidovetzki
Borejdo, J. and Burlacu, S. Orientation of actin filaments during motion in in vitro motility assay, 1319
Borovyagin, V. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
Bourdillon, C. *See* Torchut, Laval, Bourdillon, and Majda
Bovee-Geurts, P. H. M. *See* Rath, Bovee-Geurts, DeGrip, and Rothschild
Brady, J. W. *See* McGroddy, Brady, and Oswald
Brady, K. D., Wagner, K. A., Tashjian, A. H., Jr., and Golan, D. E. Relationships between amplitudes and kinetics of rapid cytosolic free calcium fluctuations in GH_4C_1 rat pituitary cells: roles for diffusion and calcium-induced calcium release, 1697
Braslavsky, S. E. *See* Schulenberg, Rohr, Gartner, and Braslavsky
Braunstein, D. and Spudich, A. Structure and activation dynamics of RBL-2H3 cells observed with scanning force microscopy, 1717
Bray, D. and Lay, S. Computer simulated evolution of a network of cell-signaling molecules, 972

Briggs, J. and Caffrey, M. The temperature-composition phase diagram of monomyristolein in water: equilibrium and metastability aspects, 573
Brink, P. R. *See* Ramanan, Mesimeris, and Brink
—*See* Veenstra, Wang, Beyer, Ramanan, and Brink
Brown, A. M. *See* Lacerda, Perez-Reyes, Wei, Castellano, Birnbaumer, and Brown
— *See* Taglialatela, Payne, Drewe, and Brown
Brunet, J. E., Vargas, V., Gratton, E., and Jameson, D. M. Hydrodynamics of horseradish peroxidase revealed by global analysis of multiple fluorescence probes, 446
Brzezinski, P. *See* Höök and Brzezinski
Budil, D. E. *See* Earle, Moscicki, Ge, Budil, and Freed
— *See* Ge, Budil, and Freed
Burghardt, T. P. *See* Hellen and Burghardt
Burlacu, S. *See* Borejdo and Burlacu
Bush, C. A. Dynamics of complex oligosaccharides, 1267
Byrne, J. H. *See* White, Baxter, and Byrne

C

Cabral-Lilly, D., Sosinsky, G. E., Reed, R. A., McDermott, M. R., and Shipley, G. G. Orientation of cholera toxin bound to model membranes, 935
Caffrey, M. *See* Briggs and Caffrey
— *See* Chung and Caffrey
Cahalan, M. D. *See* Ross, Garber, and Cahalan
Callender, R. *See* Deng, Huang, Callender, and Ebrey
Cameron, I. L. *See* Kanal, Fullerton, and Cameron
Cannon, S. C. Slow sodium channel inactivation need not be disrupted in the pathogenesis of myotonia and periodic paralysis (letter), 543
Carazo, J. M. *See* Marabini and Carazo
Carey, J. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Carson, J. H. *See* Koppel, Morgan, and Carson
Carson, M. R. *See* Winter, Sheppard, Carson, and Welsh
Casper, D. L. D. *See* Badger, Kapulsky, Gursky, Bhyravbhatla, and Casper
Castellano, A. *See* Lacerda, Perez-Reyes, Wei, Castellano, Birnbaumer, and Brown
Cavatorta, P., Giovanelli, S., Bobba, A., Riccio, P., Szabo, A. G., and Quagliariello, E. Myelin basic protein interaction with zinc and phosphate: fluorescence studies on the water-soluble form of the protein, 1174
Celentano, J. J. and Wong, R. K. S. Multiphasic desensitization of the $GABA_A$ receptor in outside-out patches, 1039
Chacon, E., Reece, J. M., Nieminen, A.-L., Zahrebelski, G., Herman, B., and Lemasters, J. J. Distribution of electrical potential, pH, free Ca^{2+}, and volume inside cultured adult rabbit cardiac myocytes during chemical hypoxia: a multiparameter digitized confocal microscopic study, 942
Champion, P. M. *See* Li and Champion
Chandra, T., Yeates, D. B., Miller, I. F., and Wong, L. B. Stationary and nonstationary correlation-frequency analysis of heterodyne mode laser light scattering: magnitude and periodicity of canine tracheal ciliary beat frequency in vivo, 878
Chapman, C. J. *See* Erdahl, Chapman, Taylor, and Pfeiffer
Chasis, J. A. *See* Knowles, Chasis, Evans, and Mohandas
Chen, H. M. and Tsong, T. Y. Comparison of kinetics of formation of helices and hydrophobic core during the folding of staphylococcal nuclease from acid, 40
Chen, T.-Y. *See* Yellen, Sodickson, Chen, and Jurman
Chen, W. and Lee, R. C. An improved double vaseline gap voltage clamp to study electroporated skeletal muscle fibers, 700
Chen, Y.-d. and Tsong, T. Y. On the efficiency and reversibility of active ligand transport induced by alternating rectangular electric pulses, 2151
Chen, Y. Z. and Prohofsky, E. W. First- or second-order transition in the melting of repeat sequence DNA, 202
— Premelting base pair opening probability and drug binding constant of a daunomycin-poly d(GCAT). Poly d(ATGC) complex, 820
Cherbavaz, D. *See* Naranjo, Latorre, Cherbavaz, McGill, and Schumaker
Chiou, H.-C. *See* Lin, Chiou, Kleinherenbrink, and Blankenship
Cho, M. R. *See* Corbett, Cho, and Golan
Choi, B.-S. *See* Yi, Choi, and Kim
Chong, P. L.-G., Tang, D., and Sugar, I. P. Exploration of physical principles underlying lipid regular distribution: effects of pressure, temperature, and radius of curvature on E/M dips in pyrene-labeled PC/DMPC binary mixtures, 2029
Chung, H. and Caffrey, M. The neutral area surface of the cubic mesophase: location and properties, 377
Clauwaert, J. *See* Xia, Aerts, Donceel, and Clauwaert
Clegg, R. M., Murchie, A. I. H., and Lilley, D. M. J. The solution structure of the four-way DNA junction at low-salt conditions: a fluorescence resonance energy transfer analysis, 99
Cleveland, J. P. *See* Radmacher, Cleveland, Fritz, Hansma, and Hansma
Cole, N. M. and Barry, D. T. Muscle sound frequencies of the frog are modulated by skeletal muscle tension, 1104
Cone, R. A. *See* Saltzman, Radomsky, Whaley, and Cone
Cooke, R., White, H., and Pate, E. A model of the release of myosin heads from actin in rapidly contracting muscle fibers, 778
— *See* Pate, Wilson, Bhimani, and Cooke
Corbett, J. D., Cho, M. R., and Golan, D. E. Deoxygenation affects fluorescence photobleaching recovery measurements of red cell membrane protein lateral mobility, 25
Corey, D. P. and Howard, J. Models for ion channel gating with compliant states (letter), 1254
Correa, A. M. and Bezanilla, F. Gating of the squid sodium channel at positive potentials. I. Macroscopic ionic and gating currents, 1853
— Gating of the squid sodium channel at positive potentials. II. Single channels reveal two open states, 1864
Crepeau, R. H., Saxena, S., Lee, S., Patyal, B., and Freed, J. H. Studies on lipid membranes by two-dimensional Fourier transform ESR enhancement of resolution to ordering and dynamics, 1489
Cross, T. A. *See* Lee and Cross

D

Dabrowski, A. R. *See* Vandorpe, Small, Dabrowski, and Morris
Daleman, S. I. *See* Prosser, Daleman, and Davis
Damodaran, K. V. and Merz, K. M., Jr. A comparison of DMPC- and DLPE-based lipid bilayers, 1076
Davis, C. C. *See* Bao, Davis, and Swicord
Davis, J. H. *See* Prosser, Daleman, and Davis
— *See* Prosser and Davis
Deamer, D. W. *See* Oliver and Deamer
DeFelice, L. J. How ATP regulates the CFT regulator, 1268
— Bentz, *Viral Fusion* (book review), 1260
DeGrip, W. J. *See* Rath, Bovee-Geurts, DeGrip, and Rothschild
Delius, M. *See* Schelling, Delius, Gschwender, Grafe, and Gambihler
Deng, H., Huang, L., Callender, R., and Ebrey, T. Evidence for a bound water molecule next to the retinal Schiff base in bacteriorhodopsin and rhodopsin: a resonance Raman study of the Schiff base hydrogen/deuterium exchange, 1129
Dér, A. *See* Sineshchekov, Govorunova, Dér, Keszthelyi, and Nultsch
Di Stefano, M. *See* Parasassi, Di Stefano, Loiero, Ravagnan, and Gratton

Dickinson, R., Franks, N. P., and Lieb, W. R. Can the stereoselective effects of the anesthetic isoflurane be accounted for by lipid solubility?, 2019
Disalvo, E. A. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
Dobson, C. M. *See* Bartik, Redfield, and Dobson
Donceel, K. *See* Xia, Aerts, Donceel, and Clauwaert
Donnelly, D. F. A novel method for rapid measurement of membrane resistance, capacitance, and access resistance, 873
Doster, W. *See* Agmon, Doster, and Post
Draber, S. and Schultze, R. Correction for missed events based on a realistic model of a detector, 191
Drewe, J. A. *See* Taglialatela, Payne, Drewe, and Brown
Duclos, R. I., Jr. *See* Shah, Duclos, and Shipley
Dunker, A. K. P22 phage capsids under pressure, 1269

E

Earle, K. A., Moscicki, J. K., Ge, M., Budil, D. E., and Freed, J. H. 250-GHz electron spin resonance studies of polarity gradients along the aliphatic chains in phospholipid membranes, 1213
Ebrey, T. *See* Deng, Huang, Callender, and Ebrey
Eckstein, E. C. *See* Yeh and Eckstein
Eftink, M. R. The use of fluorescence methods to monitor unfolding transitions in proteins, 482
— *See* Ramsay and Eftink
Egelman, E. H. *See* Orlova, Yu, and Egelman
— *See* Tsuprun, Anderson, and Egelman
Ellis, L. B. M. Hunter, *Artificial Intelligence and Molecular Biology* (book review), 1258
— The inverse protein folding question and simulated molecular evolution, 275
El-Sabban, M. E. *See* Goetz, El-Sabban, Pauli, and Hammer
Engel, J., Fechner, M., Sowerby, A. J., Finch, S. A. E., and Stier, A. Anisotropic propagation of Ca^{2+} waves in isolated cardiomyocytes, 1756
Epand, R. F. *See* Epand and Epand
Epand, R. M. and Epand, R. F. Calorimetric detection of curvature strain in phospholipid bilayers, 1450
Erdahl, W. L., Chapman, C. J., Taylor, R. W., and Pfeiffer, D. R. Ca^{2+} transport properties of ionophores A23187, ionomycin, and 4-BrA23187 in a well defined model system, 1678
Erné, S. N. *See* Trontelj, Zorec, Jazbinšek, and Erné
Evans, E. A. *See* Knowles, Chasis, Evans, and Mohandas
Evans, J. D. *See* Major and Evans

F

Fabre, I. *See* Lange, Heiber-Langer, Bonfils, Fabre, Negishi, and Balny
Fajer, P. G. Method for the determination of myosin head orientation from EPR spectra, 2039
Falkowski, P. G., Kolber, Z., and Mauzerall, D. A comment on the call to throw away your fluorescence induction apparatus (letter), 923
Fan, Z. *See* Satin, Kyle, Fan, Rogart, Fozzard, and Makielski
Fechner, M. *See* Engel, Fechner, Sowerby, Finch, and Stier
Ferreira, S. T., Stella, L., and Gratton, E. Conformational dynamics of bovine Cu, Zn superoxide dismutase revealed by time-resolved fluorescence spectroscopy of the single tyrosine residue, 1185
Fèvre, F., Henry, J.-P., and Thieffry, M. Reversible and irreversible effects of basic peptides on the mitochondrial cationic channel, 1887
Fill, M. *See* Györke, Velez, Suarez-Isla, and Fill
Finch, S. A. E. *See* Engel, Fechner, Sowerby, Finch, and Stier
Fischetti, R. F. *See* Asturias, Fischetti, and Blasie
Foster, K. R. *Electrical Properties of Mammalian Tissues. An Introduction* (book review), 930
Fozzard, H. A. *See* Lipkind and Fozzard
— *See* Satin, Kyle, Fan, Rogart, Fozzard, and Makielski
Frank, R. S. *See* Tsai, Frank, and Waugh
Franks, N. P. *See* Dickinson, Franks, and Lieb
Freed, J. H. *See* Crepeau, Saxena, Lee, Patyal, and Freed
— *See* Earle, Moscicki, Ge, Budil, and Freed
— *See* Ge, Budil, and Freed
Freiberg, A. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
Fritz, M., Radmacher, M., and Gaub, H. E. Granula motion and membrane spreading during activation of human platelets imaged by atomic force microscopy, 1328
— *See* Radmacher, Cleveland, Fritz, Hansma, and Hansma
Frojmovic, M. M. *See* Xia and Frojmovic
Fuchs, J. A. *See* Kemple, Yuan, Nollet, Fuchs, Silva, and Prendergast
Fuks, B. and Homblé, F. Permeability and electrical properties of planar lipid membranes from thylakoid lipids, 1404
Fuller, N. L. *See* Rand and Fuller
Fullerton, G. D. *See* Kanal, Fullerton, and Cameron

G

Gambihler, S. *See* Schelling, Delius, Gschwender, Grafe, and Gambihler
Garber, S. S. *See* Ross, Garber, and Cahalan
Garcia de la Torre, J., Navarro, S., and Lopez Martinez, M. C. Hydrodynamic properties of a double-helical model for DNA, 1573
Garcia, A. E., Soumpasis, D. M., and Jovin, T. M. Dynamics and relative stabilities of parallel- and antiparallel-stranded DNA duplexes, 1742
Gartner, W. *See* Schulenberg, Rohr, Gartner, and Braslavsky
Gaub, H. E. *See* Fritz, Radmacher, and Gaub
Gawrisch, K. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
Ge, M., Budil, D. E., and Freed, J. H. An electron spin resonance study of interactions between phosphatidylcholine and phosphatidylserine in oriented membranes, 1515
— *See* Earle, Moscicki, Ge, Budil, and Freed
Ghosh, R. N. and Webb, W. W. Automated detection and tracking of individual and clustered cell surface low density lipoprotein receptor molecules, 1301
Gierasch, L. M. *See* Sankaram, Marsh, Gierasch, and Thompson
Gill, D. S. *See* Roush, Gill, and Willson
Gimm, J. A. *See* Prausnitz, Milano, Gimm, Langer, and Weaver
Gimsa, J., Schnelle, T., Zechel, G., and Glaser, R. Dielectric spectroscopy of human erythrocytes: investigations under the influence of nystatin, 1244
Giovanelli, S. *See* Cavatorta, Giovanelli, Bobba, Riccio, Szabo, and Quagliariello
Glaser, R. *See* Gimsa, Schnelle, Zechel, and Glaser
Goetz, D. J., El-Sabban, M. E., Pauli, B. U., and Hammer, D. A. Dynamics of neutrophil rolling over stimulated endothelium in vitro, 2202
Golan, D. E. and Agre, P. Action at a distance: another lesson from the red cell, 1271
— *See* Brady, Wagner, Tashjian, and Golan
— *See* Corbett, Cho, and Golan
Goldberg, E. M., Lester, D. S., Borchardt, D. B., and Zidovetzki, R. Effects of diacylglycerols and Ca^{2+} on structure of phosphatidylcholine/phosphatidylserine bilayers, 382
Goldsmith, H. L. *See* Xia, Goldsmith, and van de Ven
Goldstein, R. F. Efficient rotamer elimination applied to protein side-chains and related spin glasses, 1335

Gómez-Fernández, J. C. *See* López-García, Villalaín, Gómez-Fernández, and Quinn
Gong, B.-J. *See* Park, Gong, and Tao
Govorunova, E. G. *See* Sineshchekov, Govorunova, Dér, Keszthelyi, and Nultsch
Grafe, P. *See* Schelling, Delius, Gschwender, Grafe, and Gambihler
Gratton, E. *See* Brunet, Vargas, Gratton, and Jameson
— *See* Ferreira, Stella, and Gratton
— *See* Parasassi, Di Stefano, Loiero, Ravagnan, and Gratton
Greathouse, D. V. *See* Koeppe, Killian, and Greathouse
Green, W. J. *See* Siegel, Green, and Talmon
Gruner, S. M. *See* Lewis, McElhaney, Harper, Turner, and Gruner
— *See* Lewis, McElhaney, Österberg, and Gruner
— *See* Mannock, McElhaney, Harper, and Gruner
Gschwender, M. *See* Schelling, Delius, Gschwender, Grafe, and Gambihler
Guan, Y., Wurrey, C. J., and Thomas, G. J., Jr. Vibrational analysis of nucleic acids. I. The phosphodiester group in dimethyl phosphate model compounds: $(CH_3O)_2PO_2^-$, $(CD_3O)_2PO_2^-$, and $(^{13}CH_3O)_2PO_2^-$* 225
Guidelli, R. *See* Moncelli, Becucci, and Guidelli
Gursky, O. *See* Badger, Kapulsky, Gursky, Bhyravbhatla, and Casper
Györke, S., Velez, P., Suarez-Isla, B., and Fill, M. Activation of single cardiac and skeletal ryanodine receptor channels by flash photolysis of caged Ca^{2+}, 1879

H

Haack, J. A. and Rosenberg, R. L. Calcium-dependent inactivation of L-type calcium channels in planar lipid bilayers, 1051
Hammer, D. A. *See* Goetz, El-Sabban, Pauli, and Hammer
— *See* Tempelman and Hammer
Hansma, H. G. *See* Mastrangelo, Bezanilla, Hansma, Hough, and Hansma
— *See* Radmacher, Cleveland, Fritz, Hansma, and Hansma
Hansma, P. K. *See* Mastrangelo, Bezanilla, Hansma, Hough, and Hansma
— *See* Radmacher, Cleveland, Fritz, Hansma, and Hansma
Harkins, A. B. *See* Baylor, Harkins, and Kurebayashi
Harper, P. E. *See* Lewis, McElhaney, Harper, Turner, and Gruner
— *See* Mannock, McElhaney, Harper, and Gruner
Harvey, S. C. *See* Malhotra, Tan, and Harvey
Hearst, J. E. Chromosome condensation: amorphous or structured, 551
Heginbotham, L., Lu, Z., Abramson, T., and MacKinnon, R. Mutations in the K^+ channel signature sequence, 1061
Heiber-Langer, I. *See* Lange, Heiber-Langer, Bonfils, Fabre, Negishi, and Balny
Hellen, E. H. and Burghardt, T. P. Saturation effects in polarized fluorescence photobleaching recovery and steady state fluorescence polarization, 891
Hemminga, M. A. *See* Magusin and Hemminga
Henry, J.-P. *See* Fèvre, Henry, and Thieffry
Herman, B. *See* Chacon, Reece, Nieminen, Zahrebelski, Herman, and Lemasters
Hess, S. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
Heyduk, E. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Hill, B. C. *See* Knisley, Hill, and Ideker
Hirono, S. *See* Tsujishita, Moriguchi, and Hirono
Holmgren, M. and Rakowski, R. F. Pre-steady-state transient currents mediated by the Na/K pump in internally perfused *Xenopus* oocytes, 912
Holzwarth, A. R. *See* Trinkunas and Holzwarth
Homblé, F. *See* Fuks and Homblé
Honig, B. *See* Sampogna and Honig
Höök, F. and Brzezinski, P. Light-induced voltage changes associated with electron and proton transfer in photosystem II core complexes reconstituted in phospholipid monolayers, 2066
Horowitz, N. H. *The Molecular Vision of Life: Caltech, The Rockefeller Foundation, and the Rise of the New Biology* (book review), 929
Hough, P. V. C. *See* Mastrangelo, Bezanilla, Hansma, Hough, and Hansma
Howard, J. *See* Corey and Howard
Howard, K. P. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Hsieh, H. V. and Thompson, N. L. Theory for measuring bivalent surface binding kinetics using total internal reflection with fluorescence photobleaching recovery, 898
Huang, C. *See* Li, Lin, Wang, and Huang
Huang, L. *See* Deng, Huang, Callender, and Ebrey
Hunter, P. J. *See* Mawson, Hunter, Kenwright, and Loiselle

I

Ideker, R. E. *See* Knisley, Hill, and Ideker
Inesi, G. Teaching active transport at the turn of the twenty-first century: recent discoveries and conceptual changes, 554
Ingber, D. E. *See* Wang and Ingber
Israelachvili, J. N. *See* Kuhl, Leckband, Lasic, and Israelachvili

J

Jackson, M. B. *See* Bielefeldt and Jackson
Jähnig, F. *See* Kiefer and Jähnig
Jakobsson, E. *See* Bek and Jakobsson
Jameson, D. M. *See* Brunet, Vargas, Gratton, and Jameson
Jannink, G. *See* Sikorav and Jannink
Jazbinšek, V. *See* Trontelj, Zorec, Jazbinšek, and Erné
Jentsch, T. *See* Pusch, Steinmeyer, and Jentsch
Jeremić, M. *See* Radotić, Simić-Krstić, Jeremić, and Trifunović
Jernigan, R. L. *See* Bahar and Jernigan
Johari, G. P. *See* Sartor, Mayer, and Johari
Johnson, D. A. *See* Valenzuela, Weign, Yguerabide, and Johnson
Jovin, T. M. *See* Garcia, Soumpasis, and Jovin
Jurman, M. E. *See* Boland, Jurman, and Yellen
— *See* Yellen, Sodickson, Chen, and Jurman
Jurman, M. *See* Kienker, Tomaselli, Jurman, and Yellen

K

Kamaya, H. *See* Ueda, Shinoda, and Kamaya
Kanal, K. M., Fullerton, G. D., and Cameron, I. L. A study of the molecular sources of nonideal osmotic pressure of bovine serum albumin solutions as a function of pH, 153
Kapulsky, A. *See* Badger, Kapulsky, Gursky, Bhyravbhatla, and Casper
Katsura, T. *See* Bessho, Ataka, Asai, and Katsura
Kemple, M. D., Yuan, P., Nollet, K. E., Fuchs, J. A., Silva, N., and Prendergast, F. G. ^{13}C NMR and fluorescence analysis of tryptophan dynamics in wild-type and two single-Trp variants of *Escherichia coli* thioredoxin, 2111
Kenwright, D. N. *See* Mawson, Hunter, Kenwright, and Loiselle
Keough, K. M. W. *See* Taneva and Keough
Keszthelyi, L. *See* Sineshchekov, Govorunova, Dér, Keszthelyi, and Nultsch
Kiefer, H. and Jähnig, F. Neutral phospholipids do not buffer at neutral pH (letter), 1733

Kienker, P., Tomaselli, G., Jurman, M., and Yellen, G. Conductance mutations of the nicotinic acetylcholine receptor do not act by a simple electrostatic mechanism, 325
Killian, J. A. *See* Koeppe, Killian, and Greathouse
Kim, H. *See* Yi, Choi, and Kim
King, J. *See* Prevelige, King, and Silva
Kinnunen, P. K. J. *See* Lehtonen and Kinnunen
Kleinherenbrink, F. A. M. *See* Lin, Chiou, Kleinherenbrink, and Blankenship
Knisley, S. B., Hill, B. C., and Ideker, R. E. Virtual electrode effects in myocardial fibers, 719
Knoesen, A. *See* Sidick, Baskin, Yeh, and Knoesen
Knowles, D. W., Chasis, J. A., Evans, E. A., and Mohandas, N. Cooperative action between band 3 and glycophorin A in human erythrocytes: immobilization of band 3 induced by antibodies to glycophorin A, 1726
Koeppe, R. E., II, Killian, J. A., and Greathouse, D. V. Orientations of the tryptophan 9 and 11 side chains of the gramicidin channel based on deuterium nuclear magnetic resonance spectroscopy, 14
— *See* Oiki, Koeppe, and Andersen
Kolber, Z. *See* Falkowski, Kolber, and Mauzerall
Koppel, D. E., Morgan, F., and Carson, J. H. Scanning concentration correlation spectroscopy using the confocal laser microscope, 502
Korenbrot, J. I. *See* Picones and Korenbrot
Krassowska, W. and Neu, J. C. Response of a single cell to an external electric field, 1768
Kuhl, T. L., Leckband, D. E., Lasic, D. D., and Israelachvili, J. N. Modulation of interaction forces between bilayers exposing short-chained ethylene oxide headgroups, 1479
Kume, N. *See* Yamazaki, Miyazu, Asano, Yuba, and Kume
Kurebayashi, N. *See* Baylor, Harkins, and Kurebayashi
Kusnetsov, A. *See* Lee, Philipson, Kusnetsov, and Nelson
Kwa, S. L. S. *See* Savikhin, van Amerongen, Kwa, van Grondelle, and Struve
Kyle, J. W. *See* Satin, Kyle, Fan, Rogart, Fozzard, and Makielski

L

Lacerda, A. E., Perez-Reyes, E., Wei, X., Castellano, A., Birnbaumer, L., and Brown, A. M. T-type and N-type calcium channels of *Xenopus* oocytes: evidence for specific interactions with β subunits, 1833
Lagrutta, A. *See* Pérez, Lagrutta, Adelman, and Toro
Lahajnar, G. *See* Schultz, Rupprecht, Song, Piskur, Nordenskiöld, and Lahajnar
Laible, P. D., Zipfel, W., and Owens, T. G. Excited state dynamics in chlorophyll-based antennae: the role of transfer equilibrium, 844
Lange, R., Heiber-Langer, I., Bonfils, C., Fabre, I., Negishi, M., and Balny, C. Activation volume and energetic properties of the binding of CO to hemoproteins, 89
Langer, R. *See* Prausnitz, Milano, Gimm, Langer, and Weaver
Lasalde, J. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone
Lasic, D. D. *See* Kuhl, Leckband, Lasic, and Israelachvili
Latorre, R. *See* Naranjo, Latorre, Cherbavaz, McGill, and Schumaker
Laval, J.-M. *See* Torchut, Laval, Bourdillon, and Majda
Laver, D. R. The barrel-stave model as applied to alamethicin and its analogues reevaluated, 355
Lay, S. *See* Bray and Lay
LeBihan, D. *See* Basser, Mattiello, and LeBihan
Leckband, D. E. *See* Kuhl, Leckband, Lasic, and Israelachvili
Lee, J. C. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Lee, K.-C. and Cross, T. A. Side-chain structure and dynamics at the lipid-protein interface: Val_1 of the gramicidin A channel, 1380
Lee, R. C. *See* Chen and Lee
Lee, S. *See* Crepeau, Saxena, Lee, Patyal, and Freed
Lee, T. E., Philipson, L. H., Kusnetsov, A., and Nelson, D. J. Structural determinant for assembly of mammalian K^+ channels, 667
Lee, Y.-H., Li, L., Lasalde, J., Rojas, L., McNamee, M., Ortiz-Miranda, S. I., and Pappone, P. Mutations in the M4 domain of *Torpedo californica* acetylcholine receptor dramatically alter ion channel function, 646
Leenders, R., van Gunsteren, W. F., Berendsen, H. J. C., and Visser, A. J. W. G. Molecular dynamics simulations of oxidized and reduced *Clostridium beijerinckii* flavodoxin, 634
Lehtonen, J. Y. A. and Kinnunen, P. K. J. Changes in the lipid dynamics of liposomal membranes induced by poly(ethylene glycol): free volume alterations revealed by inter- and intramolecular excimer-forming phospholipid analogs, 1981
Lemasters, J. J. *See* Chacon, Reece, Nieminen, Zahrebelski, Herman, and Lemasters
Lester, D. S. *See* Goldberg, Lester, Borchardt, and Zidovetzki
Leuchtag, H. R. Long-range interactions, voltage sensitivity, and ion conduction in S4 segments of excitable channels, 217
Lewis, R. N. A. H., McElhaney, R. N., Harper, P. E., Turner, D. C., and Gruner, S. M. Studies of the thermotropic phase behavior of phosphatidylcholines containing 2-alkyl substituted fatty acyl chains: a new class of phosphatidylcholines forming inverted nonlamellar phases, 1088
— **McElhaney, R. N., Österberg, F., and Gruner, S. M.** Enigmatic thermotropic phase behavior of highly asymmetric mixed-chain phosphatidylcholines that form mixed-interdigitated gel phases, 207
— *See* McMullen, Lewis, and McElhaney
Li, L. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone
Li, P. and Champion, P. M. Investigations of the thermal response of laser excited biomolecules, 430
Li, S. F. Y., McGhie, A. J., and Tang, S. L. New internal structure of spider dragline silk revealed by atomic force microscopy, 1209
Li, S., Lin, H.-n., Wang, Z.-q., and Huang, C. Identification and characterization of kink motifs in 1-palmitoyl-2-oleoyl-phosphatidylcholines: a molecular mechanics study, 2005
Lieb, W. R. *See* Dickinson, Franks, and Lieb
Liebman, P. A. *See* Parkes and Liebman
Lilley, D. M. J. *See* Clegg, Murchie, and Lilley
Lin, H.-n. *See* Li, Lin, Wang, and Huang
Lin, S., Chiou, H.-C., Kleinherenbrink, F. A. M., and Blankenship, R. E. Time-resolved spectroscopy of energy and electron transfer processes in the photosynthetic bacterium *Heliobacillus mobilis*, 437
Lipkind, G. M. and Fozzard, H. A. A structural model of the tetrodotoxin and saxitoxin binding site of the Na^+ channel, 1
Lischka, F. W. *See* Schild and Lischka
Liu, Y.-C. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Loiero, M. *See* Parasassi, Di Stefano, Loiero, Ravagnan, and Gratton
Loiselle, D. S. *See* Mawson, Hunter, Kenwright, and Loiselle
López-García, F., Villalaín, J., Gómez-Fernández, J. C., and Quinn, P. J. The phase behavior of mixed aqueous dispersions of dipalmitoyl derivatives of phosphatidylcholine and diacylglycerol, 1991
Lopez Martinez, M. C. *See* Garcia de la Torre, Navarro, and Lopez Martinez
Louis, C. F. Caged calcium and the ryanodine receptor, 1739

Lounnas, V., Pettitt, B. M., and Phillips, G. N., Jr A global model of the protein-solvent interface, 601
Lu, Z. *See* Heginbotham, Lu, Abramson, and MacKinnon

M

Ma, Y.-Z. and Taylor, E. W. Kinetic mechanism of myofibril ATPase, 1542
MacKinnon, R. *See* Heginbotham, Lu, Abramson, and MacKinnon
Magusin, P. C. M. M. and Hemminga, M. A. Analysis of ^{31}P MAS NMR spectra and transversal relaxation of bacteriophage M13 and tobacco mosaic virus, 1197
Majda, M. *See* Torchut, Laval, Bourdillon, and Majda
Major, G. and Evans, J. D. Solutions for transients in arbitrarily branching cables: IV. Non-uniform electrical parameters, 615
Makielski, J. C. *See* Satin, Kyle, Fan, Rogart, Fozzard, and Makielski
Malhotra, A., Tan, R. K.-Z., and Harvey, S. C. Modeling large RNAs and ribonucleoprotein particles using molecular mechanics techniques, 1777
Mannock, D. A., McElhaney, R. N., Harper, P. E., and Gruner, S. M. Differential scanning calorimetry and x-ray diffraction studies of the thermotropic phase behavior of the diastereomeric di-tetradecyl-β-D-galactosyl glycerols and their mixture, 734
Marabini, R. and Carazo, J. M. Pattern recognition and classification of images of biological macromolecules using artificial neural networks, 1804
Marcus, D. C. and Shipley, A. M. Potassium secretion by vestibular dark cell epithelium demonstrated by vibrating probe, 1939
Marsh, D. Jackson, *Thermodynamics of Membrane Receptors and Channels* (book review), 1259
— *See* Sankaram, Marsh, Gierasch, and Thompson
— *See* Swamy, Angerstein, and Marsh
Martin, H. and Barsotti, R. J. Relaxation from rigor of skinned trabeculae of the guinea pig induced by laser photolysis of caged ATP, 1115
Martin, K. S., Royer, C. A., Howard, K. P., Carey, J., Liu, Y.-C., Matthews, K., Heyduk, E., and Lee, J. C. Electrostatic forces contribute to interactions between *trp* repressor dimers, 1167
Mastrangelo, I. A., Bezanilla, M., Hansma, P. K., Hough, P. V. C., and Hansma, H. G. Structures of large T antigen at the origin of SV40 DNA replication by atomic force microscopy, 293
Matthews, K. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee
Mattiello, J. *See* Basser, Mattiello, and LeBihan
Mauzerall, D. *See* Falkowski, Kolber, and Mauzerall
Mawson, D. A., Hunter, P. J., Kenwright, D. N., and Loiselle, D. S. Oxygen exchange in the isolated, arrested guinea-pig heart: theoretical and experimental observations, 789
Mayer, E. *See* Sartor, Mayer, and Johari
McDermott, M. R. *See* Cabral-Lilly, Sosinsky, Reed, McDermott, and Shipley
McElhaney, R. N. *See* Lewis, McElhaney, Harper, Turner, and Gruner
— *See* Lewis, McElhaney, Österberg, and Gruner
— *See* Mannock, McElhaney, Harper, and Gruner
— *See* McMullen, Lewis, and McElhaney
McGann, L. E. *See* Muldrew and McGann
McGeoch, J. E. M. *See* McGeoch and McGeoch
McGeoch, M. W. and McGeoch, J. E. M. Power spectra and cooperativity of a calcium-regulated cation channel, 161
McGhie, A. J. *See* Li, McGhie, and Tang
McGill, P. *See* Naranjo, Latorre, Cherbavaz, McGill, and Schumaker
McGroddy, K. A., Brady, J. W., and Oswald, R. E. Computer simulations of cyclic and acyclic cholinergic agonists: conformational search and molecular dynamics simulations, 314
McIntosh, T. J. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
McMullen, T. P. W., Lewis, R. N. A. H., and McElhaney, R. N. Comparative differential scanning calorimetric and FTIR and ^{31}P-NMR spectroscopic studies of the effects of cholesterol and androstenol on the thermotropic phase behavior and organization of phosphatidylcholine bilayers, 741
McNamee, M. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone
Merz, K. M., Jr. *See* Damodaran and Merz
Mesimeris, V. *See* Ramanan, Mesimeris, and Brink
Milano, C. D. *See* Prausnitz, Milano, Gimm, Langer, and Weaver
Miller, I. F. *See* Chandra, Yeates, Miller, and Wong
Miyazu, M. *See* Yamazaki, Miyazu, Asano, Yuba, and Kume
Moczydlowski, E. *See* Schild and Moczydlowski
Mohandas, N. *See* Knowles, Chasis, Evans, and Mohandas
Moncelli, M. R., Becucci, L., and Guidelli, R. The intrinsic pK_a values for phosphatidylcholine, phosphatidylethanolamine, and phosphatidylserine in monolayers deposited on mercury electrodes, 1969
Morgan, F. *See* Koppel, Morgan, and Carson
Moriguchi, I. *See* Tsujishita, Moriguchi, and Hirono
Morris, C. E. *See* Vandorpe, Small, Dabrowski, and Morris
Moscicki, J. K. *See* Earle, Moscicki, Ge, Budil, and Freed
Moss, F. *See* Petracchi, Pellegrini, Pellegrino, Barbi, and Moss
Muldrew, K. and McGann, L. E. The osmotic rupture hypothesis of intracellular freezing injury, 532
Murchie, A. I. H. *See* Clegg, Murchie, and Lilley

N

Naranjo, D., Latorre, R., Cherbavaz, D., McGill, P., and Schumaker, M. F. A simple model for surface charge on ion proteins, 59
Navarro, S. *See* Garcia de la Torre, Navarro, and Lopez Martinez
Needham, D. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
Neely, A., Olcese, R., Wei, X., Birnbaumer, L., and Stefani, E. Ca^{2+}-dependent inactivation of a cloned cardiac Ca^{2+} channel $\alpha 1$ subunit ($\alpha 1C$) expressed in *Xenopus* oocytes, 1895
Negishi, M. *See* Lange, Heiber-Langer, Bonfils, Fabre, Negishi, and Balny
Nekolla, S., Andersen, C., and Benz, R. Noise analysis of ion current through the open and the sugar-induced closed state of the LamB channel of *Escherichia coli* outer membrane: evaluation of the sugar binding kinetics to the channel interior, 1388
Nelson, D. J. *See* Lee, Philipson, Kusnetsov, and Nelson
Neu, J. C. *See* Krassowska and Neu
Neugebauer, W. *See* Willis, Neugebauer, Sikorska, and Szabo
Neumann, E. *See* Wolf, Rols, Boldt, Neumann, and Teissie
Nieminen, A.-L. *See* Chacon, Reece, Nieminen, Zahrebelski, Herman, and Lemasters
Nollet, K. E. *See* Kemple, Yuan, Nollet, Fuchs, Silva, and Prendergast
Nordenskiöld, L. *See* Schultz, Rupprecht, Song, Piskur, Nordenskiöld, and Lahajnar
Nultsch, W. *See* Sineshchekov, Govorunova, Dér, Keszthelyi, and Nultsch

O

Oiki, S., Koeppe, R. E., II, and Andersen, O. S. Asymmetric gramicidin channels: heterodimeric channels with a single F_6Val^1 residue, 1823
Olcese, R. *See* Neely, Olcese, Wei, Birnbaumer, and Stefani
Oliver, A. E. and Deamer, D. W. α-Helical hydrophobic polypeptides form proton-selective channels in lipid bilayers, 1364

Opsahl, L. R. and Webb, W. W. Lipid-glass adhesion in gigasealed patch-clamped membranes, 75
— Transduction of membrane tension by the ion channel alamethicin, 71
Orlova, A., Yu, X., and Egelman, E. H. Three-dimensional reconstruction of a co-complex of F-actin with antibody Fab fragments to actin's NH_2 terminus, 276
Ortiz-Miranda, S. I. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone
Österberg, F. *See* Lewis, McElhaney, Österberg, and Gruner
Oswald, R. E. *See* McGroddy, Brady, and Oswald
Owens, T. G. *See* Laible, Zipfel, and Owens

P

Palm, W. H. *See* Binford and Palm
Papazian, D. M. *See* Perozo, Santacruz-Toloza, Stefani, Bezanilla, and Papazian
Pappone, P. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone
Parasassi, T., Di Stefano, M., Loiero, M., Ravagnan, G., and Gratton, E. Cholesterol modifies water concentration and dynamics in phospholipid bilayers: a fluorescence study using Laurdan probe, 763
— Influence of cholesterol on phospholipid bilayers phase domains as detected by Laurdan fluorescence, 120
Park, H.-S., Gong, B.-J., and Tao, T. A disulfide crosslink between Cys^{98} of troponin-C and Cys^{133} of troponin-I abolishes the activity of rabbit skeletal troponin, 2062
Parkes, J. H. and Liebman, P. A. Effect of photoregeneration on the calculaton of the amount of rhodopsin bleached by small flashes, 80
Parsegian, V. A. *See* Podgornik, Rau, and Parsegian
Parthasarathy, R. *See* Sun and Parthasarathy
Pate, E., Wilson, G., Bhimani, M., and Cooke, R. Temperature dependence of the inhibitory effects of orthovanadate on shortening velocity in fast skeletal muscle, 1554
— *See* Cooke, White, and Pate
Patro, S. Y. and Przybycien, T. M. Simulations of kinetically irreversible protein aggregate structure, 1274
Patyal, B. *See* Crepeau, Saxena, Lee, Patyal, and Freed
Pauli, B. U. *See* Goetz, El-Sabban, Pauli, and Hammer
Payne, J. P. *See* Taglialatela, Payne, Drewe, and Brown
Pedersen, P. L. Nicholls and Ferguson, *Bioenergetics 2* (book review), 2222
Pellegrini, M. *See* Petracchi, Pellegrini, Pellegrino, Barbi, and Moss
Pellegrino, M. *See* Petracchi, Pellegrini, Pellegrino, Barbi, and Moss
Pérez, G., Lagrutta, A., Adelman, J. P., and Toro, L. Reconstitution of expressed K_{Ca} channels from *Xenopus* oocytes to lipid bilayers, 1022
Pérez-Cornejo, P. and Begenisich, T. The multi-ion nature of the pore in *Shaker* K^+ channels, 1929
Perez-Reyes, E. *See* Lacerda, Perez-Reyes, Wei, Castellano, Birnbaumer, and Brown
Perozo, E., Santacruz-Toloza, L., Stefani, E., Bezanilla, F., and Papazian, D. M. S4 Mutations alter gating currents of Shaker K channels, 345
Perozo, E. *See* Bezanilla, Perozo, and Stefani
— *See* Stefani, Toro, Perozo, and Bezanilla
Petracchi, D., Pellegrini, M., Pellegrino, M., Barbi, M., and Moss, F. Periodic forcing of a K^+ channel at various temperatures, 1844
Pettitt, B. M. *See* Lounnas, Pettitt, and Phillips
Pfeiffer, D. R. *See* Erdahl, Chapman, Taylor, and Pfeiffer
Philipson, L. H. *See* Lee, Philipson, Kusnetsov, and Nelson
Phillips, G. N., Jr *See* Lounnas, Pettitt, and Phillips
Picones, A. and Korenbrot, J. I. Analysis of fluctuations in the cGMP-dependent currents of cone photoreceptor outer segments, 360
Piskur, J. *See* Schultz, Rupprecht, Song, Piskur, Nordenskiöld, and Lahajnar
Podgornik, R., Rau, D. C., and Parsegian, V. A. Parametrization of direct and soft steric-undulatory forces between DNA double helical polyelectrolytes in solutions of several different anions and cations, 962
Pollard, T. D. *See* Wachsstock, Schwarz, and Pollard
Poppe, L., van Halbeek, H., Acquotti, D., and Sonnino, S. Carbohydrate dynamics at a micellar surface: GD1a headgroup transformations revealed by NMR spectroscopy, 1642
Post, F. *See* Agmon, Doster, and Post
Prausnitz, M. R., Milano, C. D., Gimm, J. A., Langer, R., and Weaver, J. C. Quantitative study of molecular transport due to electroporation: uptake of bovine serum albumin by erythrocyte ghosts, 1522
Prendergast, F. G. *See* Kemple, Yuan, Nollet, Fuchs, Silva, and Prendergast
Prevelige, P. E., Jr., King, J., and Silva, J. L. Pressure denaturation of the bacteriophage P22 coat protein and its entropic stabilization in icosahedral shells, 1631
Prinzen, F. W. *See* Arts, Prinzen, Snoeckx, Rijcken, and Reneman
Prohofsky, E. W. *See* Chen and Prohofsky
Prosser, R. S., Daleman, S. I., and Davis, J. H. The structure of an integral membrane peptide: a deuterium NMR study of gramicidin, 1415
— **and Davis, J. H.** Dynamics of an integral membrane peptide: a deuterium NMR relaxation study of gramicidin, 1429
Przybycien, T. M. *See* Patro and Przybycien
Pullerits, T., Visscher, K. J., Hess, S., Sundström, V., Freiberg, A., Timpmann, K., and van Grondelle, R. Energy transfer in the inhomogeneously broadened core antenna of purple bacteria: a simultaneous fit of low-intensity picosecond absorption and fluorescence kinetics, 236
Pusch, M., Steinmeyer, K., and Jentsch, T. Low single channel conductance of the major skeletal muscle chloride channel, ClC-1, 149

Q

Quagliariello, E. *See* Cavatorta, Giovanelli, Bobba, Riccio, Szabo, and Quagliariello
Quinn, P. J. *See* López-García, Villalaín, Gómez-Fernández, and Quinn

R

Rädler, J. *See* Ziemann, Rädler, and Sackmann
Radmacher, M., Cleveland, J. P., Fritz, M., Hansma, H. G., and Hansma, P. K. Mapping interaction forces with the atomic force microscope, 2159
— *See* Fritz, Radmacher, and Gaub
Radomsky, M. L. *See* Saltzman, Radomsky, Whaley, and Cone
Radotić, K., Simić-Krstić, J., Jeremić, M., and Trifunović, M. A study of lignin formation at the molecular level by scanning tunneling microscopy, 1763
Rakowski, R. F. *See* Holmgren and Rakowski
Ramanan, S. V., Mesimeris, V., and Brink, P. R. Ion flow in the bath and flux interactions between channels, 989
— *See* Veenstra, Wang, Beyer, Ramanan, and Brink
Ramsay, G. and Eftink, M. R. A multidimensional spectrophotometer for monitoring thermal unfolding transitions of macromolecules, 516
Ranatunga, K. W. Thermal stress and Ca-independent contractile activation in mammalian skeletal muscle fibers at high temperatures, 1531

Rand, R. P. and Fuller, N. L. Structural dimensions and their changes in a reentrant hexagonal-lamellar transition of phospholipids, 2127

Rath, P., Bovee-Geurts, P. H. M., DeGrip, W. J., and Rothschild, K. J. Photoactivation of rhodopsin involves alterations in cysteine side chains: detection of an S-H band in the meta I→meta II FTIR difference spectrum, 2085

Rau, D. C. *See* Podgornik, Rau, and Parsegian

Ravagnan, G. *See* Parasassi, Di Stefano, Loiero, Ravagnan, and Gratton

Redfield, C. *See* Bartik, Redfield, and Dobson

Reece, J. M. *See* Chacon, Reece, Nieminen, Zahrebelski, Herman, and Lemasters

Reed, R. A. *See* Cabral-Lilly, Sosinsky, Reed, McDermott, and Shipley

Reichert, W. M. *See* Zhao and Reichert

Reneman, R. S. *See* Arts, Prinzen, Snoeckx, Rijcken, and Reneman

Riccio, P. *See* Cavatorta, Giovanelli, Bobba, Riccio, Szabo, and Quagliariello

Rijcken, J. M. *See* Arts, Prinzen, Snoeckx, Rijcken, and Reneman

Rogart, R. *See* Satin, Kyle, Fan, Rogart, Fozzard, and Makielski

Rohr, M. *See* Schulenberg, Rohr, Gartner, and Braslavsky

Rojas, L. *See* Lee, Li, Lasalde, Rojas, McNamee, Ortiz-Miranda, and Pappone

Rols, M. P. *See* Wolf, Rols, Boldt, Neumann, and Teissie

Rosenberg, R. L. *See* Haack and Rosenberg

Ross, P. E., Garber, S. S., and Cahalan, M. D. Membrane chloride conductance and capacitance in Jurkat T lymphocytes during osmotic swelling, 169

Rothschild, K. J. *See* Rath, Bovee-Geurts, DeGrip, and Rothschild

Roush, D. J., Gill, D. S., and Willson, R. C. Electrostatic potentials and electrostatic interaction energies of rat cytochrome b_5 and a simulated anion-exchange adsorbent surface, 1290

Royer, C. A. *See* Martin, Royer, Howard, Carey, Liu, Matthews, Heyduk, and Lee

Ruff, R. L. Slow Na^+ channel inactivation must be disrupted to evoke prolonged depolarization-induced paralysis (letter), 542

Rupprecht, A. *See* Schultz, Rupprecht, Song, Piskur, Nordenskiöld, and Lahajnar

S

Sackmann, E. *See* Ziemann, Rädler, and Sackmann

Saito, K., Aoki, T., Aoki, T., and Yanagida, T. Movement of single myosin filaments and myosin step size on an actin filament suspended in solution by a laser trap, 769

Saltzman, W. M., Radomsky, M. L., Whaley, K. J., and Cone, R. A. Antibody diffusion in human cervical mucus, 508

Sampogna, R. V. and Honig, B. Environmental effects on the protonation states of active site residues in bacteriorhodopsin, 1341

Sankaram, M. B., Marsh, D., Gierasch, L. M., and Thompson, T. E. Reorganization of lipid domain structure in membranes by a transmembrane peptide: an ESR spin label study on the effect of the *Escherichia coli* outer membrane protein A signal peptide on the fluid lipid domain connectivity in binary mixtures of dimyristoyl phosphatidylcholine and distearoyl phosphatidylcholine, 1959

Santacruz-Toloza, L. *See* Perozo, Santacruz-Toloza, Stefani, Bezanilla, and Papazian

Sartor, G., Mayer, E., and Johari, G. P. Calorimetric studies of the kinetic unfreezing of molecular motions in hydrated lysozyme, hemoglobin, and myoglobin, 249

Satin, J., Kyle, J. W., Fan, Z., Rogart, R., Fozzard, H. A., and Makielski, J. C. Post-repolarization block of cloned sodium channels by saxitoxin: the contribution of pore-region amino acids, 1353

Satin, L. S., Tavalin, S. J., and Smolen, P. D. Inactivation of HIT cell Ca^{2+} current by a simulated burst of Ca^{2+} action potentials, 141

Savikhin, S., van Amerongen, H., Kwa, S. L. S., van Grondelle, R., and Struve, W. S. Low-temperature energy transfer in LHC-II trimers from the Chl *a*/*b* light-harvesting antenna of photosystem II, 1597

— Zhou, W., Blankenship, R. E., and Struve, W. S. Femtosecond energy transfer and spectral equilibration in bacteriochlorophyll *a*—protein antenna trimers from the green bacterium *Chlorobium tepidum.*, 110

Saxena, S. *See* Crepeau, Saxena, Lee, Patyal, and Freed

Saxton, M. J. Anomalous diffusion due to obstacles: a Monte Carlo study, 394

Schelling, G., Delius, M., Gschwender, M., Grafe, P., and Gambihler, S. Extracorporeal shock waves stimulate frog sciatic nerves indirectly via a cavitation-mediated mechanism, 133

Schiffman, S. S. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh

Schild, D. and Lischka, F. W. Amiloride-insensitive cation conductance in *Xenopus laevis* olfactory neurons: a combined patch clamp and calcium imaging analysis, 299

Schild, L. and Moczydlowski, E. Permeation of Na^+ through open and Zn^{2+} occupied conductance states of cardiac sodium channels modified by batrachotoxin. Exploring ion-ion interactions in a multi-ion channel, 654

Schneider, G. and Wrede, P. The rational design of amino acid sequences by artificial neural networks and simulated molecular evolution: de novo design of an idealized leader peptidase cleavage site, 335

Schnelle, T. *See* Gimsa, Schnelle, Zechel, and Glaser

Schulenberg, P. J., Rohr, M., Gartner, W., and Braslavsky, S. E. Photoinduced volume changes associated with the early transformations of bacteriorhodopsin (BR). A laser-induced optoacoustic spectroscopy study, 838

Schultz, J., Rupprecht, A., Song, Z., Piskur, J., Nordenskiöld, L., and Lahajnar, G. A mechanochemical study of MgDNA fibers in ethanol-water solutions, 810

Schultze, R. *See* Draber and Schultze

Schumaker, M. F. *See* Naranjo, Latorre, Cherbavaz, McGill, and Schumaker

Schwarz, W. H. *See* Wachsstock, Schwarz, and Pollard

Shah, J., Duclos, R. I., Jr., and Shipley, G. G. Structure and thermotropic properties of 1-stearoyl-2-acetyl-phosphatidylcholine bilayer membranes, 1469

Sheppard, D. N. *See* Winter, Sheppard, Carson, and Welsh

Shinoda, F. *See* Ueda, Shinoda, and Kamaya

Shipley, A. M. *See* Marcus and Shipley

Shipley, G. G. *See* Cabral-Lilly, Sosinsky, Reed, McDermott, and Shipley

— *See* Shah, Duclos, and Shipley

Sidick, E., Baskin, R. J., Yeh, Y., and Knoesen, A. Rigorous analysis of light diffraction ellipsometry by striated muscle fibers, 2051

Siegel, D. P., Green, W. J., and Talmon, Y. The mechanism of lamellar-to-inverted hexagonal phase transitions: a study using temperature-jump cryo-electron microscopy, 402

— *See* Walter, Yeagle, and Siegel

Sikorav, J.-L. and Jannink, G. Kinetics of chromosome condensation in the presence of topoisomerases: a phantom chain model, 827

Sikorska, M. *See* Willis, Neugebauer, Sikorska, and Szabo

Silva, J. L. *See* Prevelige, King, and Silva

Silva, N. *See* Kemple, Yuan, Nollet, Fuchs, Silva, and Prendergast

Simić-Krstić, J. *See* Radotić, Simić-Krstić, Jeremić, and Trifunović

Simon, S. A., Disalvo, E. A., Gawrisch, K., Borovyagin, V., Toone, E., Schiffman, S. S., Needham, D., and McIntosh, T. J. Increased adhesion between neutral lipid bilayers: interbilayer bridges formed by tannic acid, 1943

Sineshchekov, O. A., Govorunova, E. G., Dér, A., Keszthelyi, L., and Nultsch, W. Photoinduced electric currents in carotenoid-deficient *Chlamydomonas* mutants reconstituted with retinal and its analogs, 2073
Sjodin, R. A. *See* Wu, Sjodin, and Sowers
Small, D. L. *See* Vandorpe, Small, Dabrowski, and Morris
Smolen, P. D. *See* Satin, Tavalin, and Smolen
Snoeckx, L. H. E. H. *See* Arts, Prinzen, Snoeckx, Rijcken, and Reneman
Sodickson, D. *See* Yellen, Sodickson, Chen, and Jurman
Somsen, O. J. G., van Mourik, F., van Grondelle, R., and Valkunas, L. Energy migration and trapping in a spectrally and spatially inhomogeneous light-harvesting antenna, 1580
Song, Z. *See* Schultz, Rupprecht, Song, Piskur, Nordenskiöld, and Lahajnar
Sonnino, S. *See* Poppe, van Halbeek, Acquotti, and Sonnino
Sosinsky, G. E. *See* Cabral-Lilly, Sosinsky, Reed, McDermott, and Shipley
Soumpasis, D. M. *See* Garcia, Soumpasis, and Jovin
Sowerby, A. J. *See* Engel, Fechner, Sowerby, Finch, and Stier
Sowers, A. E. *See* Wu, Sjodin, and Sowers
Spudich, A. *See* Braunstein and Spudich
Stefani, E., Toro, L., Perozo, E., and Bezanilla, F. Gating of *Shaker* K^+ channels: I. Ionic and gating currents, 996
— *See* Bezanilla, Perozo, and Stefani
— *See* Neely, Olcese, Wei, Birnbaumer, and Stefani
— *See* Perozo, Santacruz-Toloza, Stefani, Bezanilla, and Papazian
Steinmeyer, K. *See* Pusch, Steinmeyer, and Jentsch
Stella, L. *See* Ferreira, Stella, and Gratton
Stier, A. *See* Engel, Fechner, Sowerby, Finch, and Stier
Struve, W. S. Diesenhofer and Norris, *The Photosynthetic Reaction Center* (book review), 1734
— *See* Savikhin, van Amerongen, Kwa, van Grondelle, and Struve
— *See* Savikhin, Zhou, Blankenship, and Struve
Suarez-Isla, B. *See* Györke, Velez, Suarez-Isla, and Fill
Sugar, I. P. *See* Chong, Tang, and Sugar
Sun, S. and Parthasarathy, R. Protein sequence and structure relationship ARMA spectral analysis: application to membrane proteins, 2092
Sundström, V. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
Sung, S.-S. Helix folding simulations with various initial conformations, 1796
Swamy, M. J., Angerstein, B., and Marsh, D. Differential scanning calorimetry of thermotropic phase transitions in vitaminylated lipids: aqueous dispersions of *N*-biotinyl phosphatidylethanolamines, 31
Swicord, M. L. *See* Bao, Davis, and Swicord
Szabo, A. G. *See* Cavatorta, Giovanelli, Bobba, Riccio, Szabo, and Quagliariello
— *See* Willis, Neugebauer, Sikorska, and Szabo

T

Taglialatela, M., Payne, J. P., Drewe, J. A., and Brown, A. M. Rescue of lethal subunits into functional K^+ channels, 179
Talmon, Y. *See* Siegel, Green, and Talmon
Tan, R. K.-Z. *See* Malhotra, Tan, and Harvey
Taneva, S. and Keough, K. M. W. Pulmonary surfactant proteins SP-B and SP-C in spread monolayers at the air-water interface: I. Monolayers of pulmonary surfactant protein SP-B and phospholipids, 1137
— Pulmonary surfactant proteins SP-B and SP-C in spread monolayers at the air-water interface: II. Monolayers of pulmonary surfactant protein SP-C and phospholipids, 1149
— Pulmonary surfactant proteins SP-B and SP-C in spread monolayers at the air-water interface: III. Proteins SP-B plus SP-C with phospholipids in spread monolayers, 1158
Tang, D. *See* Chong, Tang, and Sugar
Tang, S. L. *See* Li, McGhie, and Tang
Tao, T. *See* Park, Gong, and Tao
Tashjian, A. H., Jr. *See* Brady, Wagner, Tashjian, and Golan
Tavalin, S. J. *See* Satin, Tavalin, and Smolen
Taylor, E. W. *See* Ma and Taylor
Taylor, R. W. *See* Erdahl, Chapman, Taylor, and Pfeiffer
Teissie, J. *See* Wolf, Rols, Boldt, Neumann, and Teissie
Tempelman, L. A. and Hammer, D. A. Receptor-mediated binding of IgE-sensitized rat basophilic leukemia cells to antigen-coated substrates under hydrodynamic flow, 1231
Thieffry, M. *See* Fèvre, Henry, and Thieffry
Thomas, D. D. Angular disorder of weak-binding actomyosin cross-bridges, 1272
Thomas, G. J., Jr. *See* Guan, Wurrey, and Thomas
Thompson, N. L. *See* Hsieh and Thompson
Thompson, T. E. *See* Sankaram, Marsh, Gierasch, and Thompson
Timpmann, K. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
Tomaselli, G. *See* Kienker, Tomaselli, Jurman, and Yellen
Toone, E. *See* Simon, Disalvo, Gawrisch, Borovyagin, Toone, Schiffman, Needham, and McIntosh
Torchut, E., Laval, J.-M., Bourdillon, C., and Majda, M. Electrochemical measurements of the lateral diffusion of electroactive amphiphiles in supported phospholipid monolayers, 753
Toro, L. *See* Pérez, Lagrutta, Adelman, and Toro
— *See* Stefani, Toro, Perozo, and Bezanilla
Trifunović, M. *See* Radotić, Simić-Krstić, Jeremić, and Trifunović
Trinick, J. *See* Walker, White, Belknap, and Trinick
Trinkunas, G. and Holzwarth, A. R. Kinetic modeling of exciton migration in photosynthetic systems: 2. Simulations of excitation dynamics in two-dimensional photosystem I core antenna/reaction center complexes, 415
Trissl, H.-W. Response to Falkowski et al, 925
Trontelj, Z., Zorec, R., Jazbinšek, V., and Erné, S. N. Magnetic detection of a single action potential in *Chara corallina* internodal cells, 1694
Tsai, M. A., Frank, R. S., and Waugh, R. E. Passive mechanical behavior of human neutrophils: effect of cytochalasin B, 2166
Tsong, T. Y. *See* Chen and Tsong
— *See* Chen and Tsong
Tsujishita, H., Moriguchi, I., and Hirono, S. Modeling of the three-dimensional structure of polypeptides in solution using potential-scaled/hot-solute molecular dynamics, 1815
Tsuprun, V., Anderson, D., and Egelman, E. H. The bacteriophage $\phi 29$ head-tail connector shows 13-fold symmetry in both hexagonally packed arrays and as single particles, 2139
Turner, D. C. *See* Lewis, McElhaney, Harper, Turner, and Gruner

U

Ueda, I., Shinoda, F., and Kamaya, H. Temperature-dependent effects of high pressure on the bioluminescence of firefly luciferase, 2107
Ulrich, A. S. and Watts, A. Molecular response of the lipid headgroup to bilayer hydration monitored by ^{2}H-NMR, 1441

V

Valenzuela, C. F., Weign, P., Yguerabide, J., and Johnson, D. A. Transverse distance between the membrane and the agonist binding sites on the *Torpedo* acetylcholine receptor: a fluorescence study, 674
Valkunas, L. *See* Somsen, van Mourik, van Grondelle, and Valkunas
van Amerongen, H. *See* Savikhin, van Amerongen, Kwa, van Grondelle, and Struve

van de Ven, T. G. M. *See* Xia, Goldsmith, and van de Ven
van Grondelle, R. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
— *See* Savikhin, van Amerongen, Kwa, van Grondelle, and Struve
— *See* Somsen, van Mourik, van Grondelle, and Valkunas
van Gunsteren, W. F. *See* Leenders, van Gunsteren, Berendsen, and Visser
van Halbeek, H. *See* Poppe, van Halbeek, Acquotti, and Sonnino
van Mourik, F. *See* Somsen, van Mourik, van Grondelle, and Valkunas
Vanderkooi, G. Computation of mixed phosphatidylcholine-cholesterol bilayer structures by energy minimization, 1457
Vandorpe, D. H., Small, D. L., Dabrowski, A. R., and Morris, C. E. FMRFamide and membrane stretch as activators of the *Aplysia* S-channel, 46
Vargas, V. *See* Brunet, Vargas, Gratton, and Jameson
Veenstra, R. D., Wang, H.-Z., Beyer, E. C., Ramanan, S. V., and Brink, P. R. Connexin37 forms high conductance gap junction channels with subconductance state activity and selective dye and ionic permeabilities, 1915
Velez, P. *See* Györke, Velez, Suarez-Isla, and Fill
Villalaín, J. *See* López-García, Villalaín, Gómez-Fernández, and Quinn
Visscher, K. J. *See* Pullerits, Visscher, Hess, Sundström, Freiberg, Timpmann, and van Grondelle
Visser, A. J. W. G. *See* Leenders, van Gunsteren, Berendsen, and Visser

W

Wachsstock, D. H., Schwarz, W. H., and Pollard, T. D. Cross-linker dynamics determine the mechanical properties of actin gels, 801
Wagner, K. A. *See* Brady, Wagner, Tashjian, and Golan
Walker, M., White, H., Belknap, B., and Trinick, J. Electron cryomicroscopy of acto-myosin-S1 during steady-state ATP hydrolysis, 1563
Wallenstein, G. V. A model of the electrophysiological properties of nucleus reticularis thalami neurons, 978
Walter, A., Yeagle, P. L., and Siegel, D. P. Diacylglycerol and hexadecane increase divalent cation-induced lipid mixing rates between phosphatidylserine large unilamellar vesicles, 366
Wand, A. J. Toward unified and consistent views of protein dynamics, 1740
Wang, H.-Z. *See* Veenstra, Wang, Beyer, Ramanan, and Brink
Wang, M. D. *See* Axelrod and Wang
Wang, N. and Ingber, D. E. Control of cytoskeletal mechanics by extracellular matrix, cell shape, and mechanical tension, 2181
Wang, Z.-q. *See* Li, Lin, Wang, and Huang
Watts, A. *See* Ulrich and Watts
Waugh, R. E. *See* Tsai, Frank, and Waugh
Weaver, J. C. *See* Prausnitz, Milano, Gimm, Langer, and Weaver
Webb, W. W. *See* Ghosh and Webb
— *See* Opsahl and Webb
Wei, X. *See* Lacerda, Perez-Reyes, Wei, Castellano, Birnbaumer, and Brown
— *See* Neely, Olcese, Wei, Birnbaumer, and Stefani
Weign, P. *See* Valenzuela, Weign, Yguerabide, and Johnson
Welsh, M. J. *See* Winter, Sheppard, Carson, and Welsh
Westerblad, H. and Allen, D. G. Methods for calibration of fluorescent calcium indicators in skeletal muscle fibers (letter), 926
Whaley, K. J. *See* Saltzman, Radomsky, Whaley, and Cone
White, H. *See* Cooke, White, and Pate
— *See* Walker, White, Belknap, and Trinick
White, J. A., Baxter, D. A., and Byrne, J. H. Analysis of the modulation by serotonin of a voltage-dependent potassium current in sensory neurons of aplysia, 710
Wikswo, J. P., Jr The complexities of cardiac cables: virtual electrode effects, 551
Willis, K. J., Neugebauer, W., Sikorska, M., and Szabo, A. G. Probing α-helical secondary structure at a specific site in model peptides via restriction of tryptophan side-chain rotamer conformation, 1623
Willson, R. C. *See* Roush, Gill, and Willson
Wilson, G. *See* Pate, Wilson, Bhimani, and Cooke
Winter, M. C., Sheppard, D. N., Carson, M. R., and Welsh, M. J. Effect of ATP concentration on CFTR Cl^- channels: a kinetic analysis of channel regulation, 1398
Wolf, H., Rols, M. P., Boldt, E., Neumann, E., and Teissie, J. Control by pulse parameters of electric field-mediated gene transfer in mammalian cells, 524
Wong, L. B. *See* Chandra, Yeates, Miller, and Wong
Wong, P. T. T. Pressure-induced correlation field splitting of vibrational modes: structural and dynamic properties in lipid bilayers and biomembranes, 1505
Wong, R. K. S. *See* Celentano and Wong
Wrede, P. *See* Schneider and Wrede
Wu, Y., Sjodin, R. A., and Sowers, A. E. Distinct mechanical relaxation components in pairs of erythrocyte ghosts undergoing fusion, 114
Wurrey, C. J. *See* Guan, Wurrey, and Thomas

X

Xia, J.-z., Aerts, T., Donceel, K., and Clauwaert, J. Light scattering by bovine α-crystallin proteins in solution: hydrodynamic structure and interparticle interaction, 861
Xia, Z. and Frojmovic, M. M. Aggregation efficiency of activated normal or fixed platelets in a simple shear field: effect of shear and fibrinogen occupancy, 2190
— **Goldsmith, H. L., and van de Ven, T. G. M.** Flow-induced detachment of red blood cells adhering to surfaces by specific antigen-antibody bonds, 1222
Xiang, T.-x. and Anderson, B. D. Molecular distributions in interphases: statistical mechanical theory combined with molecular dynamics simulation of a model lipid bilayer, 561

Y

Yamazaki, M., Miyazu, M., Asano, T., Yuba, A., and Kume, N. Direct evidence of induction of interdigitated gel structure in large unilamellar vesicles of dipalmitoylphosphatidylcholine by ethanol: studies by excimer method and high-resolution electron cryomicroscopy, 729
Yanagida, T. *See* Saito, Aoki, Aoki, and Yanagida
Yeagle, P. L. *See* Walter, Yeagle, and Siegel
Yeates, D. B. *See* Chandra, Yeates, Miller, and Wong
Yeh, C. and Eckstein, E. C. Transient lateral transport of platelet-sized particles in flowing blood suspensions, 1706
Yeh, Y. *See* Sidick, Baskin, Yeh, and Knoesen
Yellen, G., Sodickson, D., Chen, T.-Y., and Jurman, M. E. An engineered cysteine in the external mouth of a K^+ channel allows inactivation to be modulated by metal binding, 1068
— *See* Boland, Jurman, and Yellen
— *See* Kienker, Tomaselli, Jurman, and Yellen
Yguerabide, J. Theory for establishing proximity relations in biological membranes by excitation energy transfer measurements, 683
— *See* Valenzuela, Weign, Yguerabide, and Johnson
Yi, G.-S., Choi, B.-S., and Kim, H. Structures of wild-type and mutant signal sequences of *Escherichia coli* ribose binding protein, 1604
Yu, X. *See* Orlova, Yu, and Egelman
Yuan, P. *See* Kemple, Yuan, Nollet, Fuchs, Silva, and Prendergast
Yuba, A. *See* Yamazaki, Miyazu, Asano, Yuba, and Kume

Z

Zahrebelski, G. *See* Chacon, Reece, Nieminen, Zahrebelski, Herman, and Lemasters
Zechel, G. *See* Gimsa, Schnelle, Zechel, and Glaser
Zhao, S. and Reichert, W. M. Analysis of protein binding to receptor-doped lipid monolayers by Monte Carlo simulation, 305
Zhou, W. *See* Savikhin, Zhou, Blankenship, and Struve
Zidovetzki, R. *See* Goldberg, Lester, Borchardt, and Zidovetzki
Ziemann, F., Rädler, J., and Sackmann, E. Local measurements of viscoelastic moduli of entangled actin networks using an oscillating magnetic bead micro-rheometer, 2210
Zipfel, W. *See* Laible, Zipfel, and Owens
Zorec, R. *See* Trontelj, Zorec, Jazbinšek, and Erné

SUBJECT INDEX

A

Access resistance, measurement of, 873
Acetylcholine receptor
distance between membrane and agonist binding site on, 674
M4 domain mutations in, ion channel function and, 646
Actin-Fab complex, three-dimensional reconstruction of, 276
Actin filament, orientation of, during motion, 1319
Actin filament gel, mechanical properties of, 801
Actin network, viscoelastic moduli of, measurement of, 2210
Active transport, recent discoveries and conceptual changes in, 554
Actomyosin, in ATP hydrolysis, electron cryomicroscopy of, 1563
Actomyosin ATPase, kinetic mechanism of, 1542
Actomyosin cross-bridges, angular disorders of, 1272
Actomyosin motility assay, with laser trap, 769
Alamethicin, barrel stave model of, 355
Alamethicin switching, tension-dependent, 71
Amiloride-insensitive cation conductance, in olfactory neurons, 299
Amino acid sequences, rational design of, 335
γ-Aminobutyric acid receptor, desensitization of, 1039
Amphiphiles, electroactive, lateral diffusion of, in phospholipid monolayers, 753
Androstenol, phosphatidylcholine bilayers and, 741
Anisotropy data, global analysis of, 446
Antenna
energy migration and trapping in, 1580, 1597
energy transfer equilibrium in, 844
Antibody diffusion, in cervical mucus, 508
Antigen-antibody bonds, flow-induced red blood cell detachment and, 1222
Atomic force microscopy
interaction force mapping with, 2159
T antigen structure by, 293
ATP
cystic fibrosis transmembrane regulator and, 1268, 1398
hydrolysis of, actomyosin in, electron cryomicroscopy of, 1563
ATPase, myofibril, kinetic mechanism of, 1542
AutoRegressive Moving Average, of membrane protein, 2092
Avidin, in actin filament gel, 801

B

Bacteria
photosynthetic, energy transfer in, time-resolved spectroscopy of, 437
purple, core antenna of, energy transfer in, 236
Bacteriochlorophyll-protein complex, femtosecond energy transfer in, 110
Bacteriophage, $\phi 29$ head-tail connector of, symmetry in, 2139
Bacteriophage M13, phosphorus magic angle spinning NMR and transversal relaxation of, 1197
Bacteriorhodopsin
calculating pK_a values in, 1341
deuterium-hydrogen exchange of, 1129
photoinduced volume changes and, 838
protonation states of, environmental effects on, 1341
Band 3, immobilization of, by antibodies to glycophorin A, 1726
Barrel stave model, of alamethicin, 355
Basophilic leukemia cell, adhesion of, under hydrodynamic flow, 1231
Batrachotoxin, and Na^+ permeation through zinc-induced substate, 654
Biophysics, teaching of, to general audience, 2217
Biotin, in actin filament gel, 801
Biotinyl phosphatidylethanolamines, differential scanning calorimetry of, 31
Bleaching, by small flash, photoregeneration and, 80
Blood flow, transient transport of platelet-size particles in, 1706
Book reviews
Artificial Intelligence and Molecular Biology by Lawrence Hunter, editor, 1258
Bioenergetics 2 by David G. Nicholls and Stuart J. Ferguson, 2222
Electrical Properties of Mammalian Tissues: An Introduction by B. J. Northover, 930
Energy Transduction in Biological Membranes: A Textbook of Bioenergetics by William A. Cramer and David B. Knaff, 268
Moleclar Vision of Life: Caltech, The Rockefeller Foundation, and the Rise of the New Biology by Lily E. Kay, 929
The Photosynthetic Reaction Center by Johann Deisenhofer and James R. Norris, editors, 1734
Thermodynamics of Membrane Receptors and Channels by Meyer B. Jackson, editor, 1259
Viral Fusion Mechanisms by Joe Bentz, 1260
Books received, 1261
Bovine serum albumin, erythrocyte ghost uptake of, 1522
Bovine serum albumin solutions, nonideal osmotic pressure of, pH and, 153

C

Ca^{2+}
caged, flash photolysis of, cardiac and skeletal ryanodine receptor channel activation by, 1879
interaction of, with diacylglycerols and phospholipids, 382
Ca^{2+} ATPase, phosphorylation of, sarcoplasmic reticulum and, 1653, 1665
Ca^{2+} channel, cardiac, inactivation of, 1895
Ca^{2+} current
calcium-dependent inactivation of, 1051
inactivation and bursting of, 141
Ca^{2+} transport, by ionophores, 1678
Ca^{2+} wave, in cardiomyocytes, 1756
Cable
cardiac, 551
nonuniform branching of, 615
Cadmium modulation, of K^+ channel, cysteines and, 1068
Calcium
caged, ryanodine receptor and, 1739, 1879
fluorescent, indicators of, in skeletal muscle fiber, calibration of, 926, 927
Calcium-activated K^+ channel, cloned, lipid bilayers in, 1022
Calcium channel, T-type and N-type, interactions of, with β subunits, 1833
Calcium fluctuation, shapes of, in pituitary cell, 1697
Calcium-regulated cation channel, power spectra and cooperativity of, 161
Carbohydrate dynamics, at micellar GD1a headgroup, 1642
Carbon monoxide, binding of, to hemoproteins, 89
Cardiac adaptation, to mechanical load, 953
Cardiac Ca^{2+} channel, inactivation of, 1895
Cardiac cables, 551
Cardiac myocytes, during hypoxia, confocal microscopy of, 942
Cardiac ryanodine receptor channel, caged calcium and, 1879
Cardiomyocyte, Ca^{2+} wave in, 1756
Cation binding, in insulin crystals, 286
Cation channel, calcium-regulated, power spectra and cooperativity of, 161

Cation conductance, amiloride-insensitive, in olfactor neurons, 299
Cationic channel, mitochondrial, basic peptides and, 1887
Cavitation, nerve stimulation by, 133
Cell adhesion
antigen-antibody bonds and, 1222
under hydrodynamic flow, 1231
Cell shape, cytoskeletal mechanics and, 2181
Cell signal pathways, computer-simulated evolution of, 972
Cell surface receptors, reaction rate enhancement of, 588
Cellular capacitance, measurement of, 873
Cervical mucus, antibody diffusion in, 508
cGMP-gated channels, in cone photoreceptors, 360
Chara corallina, single action potential in, 1694
Chlamydomonas, carotenoid-deficient, electric currents in, 2073
Chloride, of membrane, conductance and capacitance of, in osmotic swelling, 169
Chloride channel
of cystic fibrosis transmembrane regulator, ATP and, 1398
of skeletal muscle, low conductance of, 149
Chlorpromazine, membrane absorption of, 2024
Cholera toxin, lipid-bound, orientation of, 935
Cholesterol
phosphatidylcholine bilayers and, 741
phospholipid bilayer hydration reduction by, 763
phospholipid domain suppression by, 120
Cholinergic agonists, computer simulations of, 314
Chromosome condensation, 551
kinetics of, topoisomerases and, 827
Ciliary beat, nonstationary, regulation of, 878
Cone photoreceptors, cGMP-gated channels in, 360
Connexin, gap junction channel formation by, 1915
Copper superoxide dismutase, conformational dynamics of, 1185
Core antenna, of purple bacteria, energy transfer in, 236
Core antenna-reaction center complex, excitation dynamic simulations in, 415
Correlation field splitting, of vibrational modes, 1505
Cross-bridge detachment, rigor, kinetics of, 1115
α-Crystallin, light scattering by, 861
Crystallization kinetics, of lysozyme, 310
Cubic mesophase, neutral area surface of, 377
Currents
ionic and gating, of K^+ channel, 996
transient, mediated by Na/K pump, 912
Curvature strain energy, of phospholipid bilayers, 1450
Cysteine, in K^+ channel, metal modulation and, 694, 1068
Cysteine side chains, in rhodopsin photoactivation, 2085
Cystic fibrosis transmembrane regulator
ATP regulation of, 1268, 1398
kinetic analysis of, 1398
Cytochalasin B, neutrophil mechanical behavior and, 2166
Cytochrome b_5, surface electrostatics and, 1290
Cytoskeletal mechanics, control of, 2181

D

Daunomycin-poly d(GCAT)·poly d(ATGC) complex, premelting base pair opening probability and drug binding constant of, 820
Dehydrogenative polymer, formation and organization of, 1763
Density states, intermediate, in globular protein, 454
Deoxycholate, membrane absorption of, 2024
Deoxygenation, lateral mobility and, 25
Depolarization-induced paralysis, sodium ion channel and, 542, 543, 545
Deuterium-hydrogen exchange, in bacteriorhodopsin and rhodopsin, 1129
Diacylglycerol
dipalmitoyl derivatives of, phase behavior of, 1991
interactions of, with calcium ion and phospholipids, 382
phosphatidylserine unilamellar vesicle fusion and, 366
Diffusion, anomalous, Monte Carlo study of, 394
Dilauroylphosphatidylethanolamine-based lipid bilayer, molecular dynamic simulation of, 1076
Dimyristoylphosphatidylcholine
-based lipid bilayer, molecular dynamic simulation of, 1076
distearoylphosphatidylcholine connectivity to, in membrane, 1959
Dipalmitoylglycerol, phase behavior of, 1991
Dipalmitoylphosphatidylcholine
large unilamellar vesicles of, interaction of, with ethanol, 729
phase behavior of, 1991
Ditetradecyl-β-D-galactosyl glycerols, differential scanning calorimetryand x-ray studies of, 734
DNA
double-helical, hydrodynamic properties of, 1573
four-way junction solution structure of, 99
repeat sequence, melting of, 202
DNA duplex, dynamics and stabilities of, 1742
DNA phosphodiesters, vibrational analysis of, 225

E

Electric field, external, single cell response to, 1768
Electric pulse, alternating, ligand transport and, 2151
Electrode effect, virtual, in myocardial fiber, 719
Electroporation, quantitative study of, 1522
Electrostatic potential, of cytochrome b, 1290
Electrotransfection, of mammalian cells, 524
Endothelium, neutrophil rolling over, 2202
Energy, migration and trapping of, in antenna, 844
Energy transfer
femtosecond, in bacteriochlorphyll-protein complex, 110
in *Heliobacillus mobilis*, time-resolved spectroscopy of, 437
in purple bacteria core antenna, 236
to measure membrane distance relations, 683
Enthalpy relaxation, in hydrated proteins, 249
Epithelium, of vestibular dark cell, potassium secretion by, 1939
Erythrocyte
dielectric spectroscopy of, nystatin and, 1244
flow-induced detachment of, 1222
Erythrocyte ghost
bovine serum albumin uptake by, 1522
fusion of, kinetics of, 114
Erythrocyte membrane protein, lateral mobility of, deoxygenation and, 25
Erythrocyte suspension, microwave dielectric measurement of, 2173
Escherichia coli
outer membrane of
ion current through LamB channel of, noise analysis of, 1388
lipid domain structure and, 1959
ribose binding protein of, signal sequences of, 1604
thioredoxin of, tryptophan dynamics in, 2111
Ethanol, dipalmitoylphosphatidylcholine large unilamellar vesicle interaction with, 729
Ethylene oxide headgroups, bilayer forces and, 1479
Exciton migration, in photosynthetic systems, 415
Extracellular matrix, cytoskeletal mechanics and, 2181

F

Fibrinogen occupancy, shear rate and, 2190
Flavodoxin, molecular dynamics of, 634

Fluorescence
induction of, interpretation of, 923, 925
protein unfolding monitored by, 482
Fluorescence photobleaching, recovery from
bivalent surface kinetics and, 898
saturation effects in, 891
Fluorescent calcium indicators, in skeletal muscle fiber, calibration of, 926, 927
FMRFamide, S-channel activation and, 46
Freezing injury, osmotic rupture and, 532

G

Gap junction channel, high conductance, connexin formation of, 1915
Gating current, of K^+ channel, 345, 996, 1011, 1254
GD1a headgroup, micellar, dynamics of, 1642
Gene transfer, mammalian, 524
GH4C1 cell, calcium fluctuations in, shapes of, 1697
Glass-lipid adhesion, in patch-clamped membranes, 75
Glycophorin A, antibodies to, band 3 immobilization by, 1726
Gramicidin
dynamics of, deuterium NMR study of, 1429
structure of, deuterium NMR study of, 1415
tryptophan orientations in, 14
Gramicidin channel
asymmetric, 1823
valine in, structure and dynamics of, 1380, 1823
Granula motion, during platelet activation, 1328

H

Helix folding, simulation of, 1796
Hemoglobin, hydrated, enthalpy relaxation in, 249
Hemoproteins, CO binding to, 89
Hexadecane, phosphatidylserine unilamellar vesicle fusion and, 366
Hexagonal phase, lamellar transition to, mechanism of, 402
Hexagonal to lamellar phase transition, phospholipid, 2127
Horseradish peroxidase, hydrodynamics of, global analysis of, 446
Hydration, of phospholipid bilayers, cholesterol reduction of, 763
Hydrogen-deuterium exchange, in bacteriorhodopsin and rhodopsin, 11129
Hypoxia, cardiac myocytes in, confocal microscopy of, 942

I

Image data set, pattern recognition and classification in, 1804
Insulin crystals, cation binding in, 286
Interaction forces, mapping of, with atomic force microscope, 2159
Interphases, molecular distribution in, theory and simulation of, 561
Ion channel
enzymatic modulation of, in membrane patch, 1904
interactions and voltage sensitivity and conductance of, 217
ion flow and flux interactions in, 989
tension-dependent, 71
Ion channel current
gating
in compliant states, 1254
components of, 1011
of K^+ channel, 996
Ion channel flow, in bath, flux interactions with, 989
Ion channel function, M4 domain mutations and, in acetylcholine receptor, 646
Ion channel proteins, surface charge on, 59
Ion current, through LamB channel, in *E. coli* outer membrane, noise analysis of, 1388
Ionic strength, nicotinic acetylcholine receptor conductance mutations and, 325
Ionophores, calcium transport by, 1678
Isoflurane, stereoselective effects of, 2019

L

LamB channel, in *E. coli* outer membrane, ion current through, noise analysis of, 1388
Lamellar to hexagonal phase transition, mechanism of, 402
Laser-excited biomolecules, thermal response of, 430
Laser light scattering, nonstationary, regulation of, 878
Laser microscope, confocal, scanning concentration correlation spectroscopy with, 502
Laser photolysis, rigor cross-bridge detachment and, 1115
Lecithin-cholesterol bilayer, structure of, by energy minimization, 1457
Letters to the editor, 542, 923, 926, 1254, 1733
Leukemia cell, structure and activation dynamics of, 1717
Ligand transport, alternating electric pulses and, 2151
Light diffraction ellipsometry, by striated muscle fiber, 2051
Light-induced voltage change, in phospholipid monolayer, 2066
Light scattering
by α-crystallin, 861
nonstationary, regulation of, 878
Lignin formation, at molecular level, 1763
Lipid, regular distribution of, physical principles of, 2029
Lipid bilayer
adhesion of, tannic acid and, 1943
calcium channel inactivation in, 1051
cloned calcium-activated potassium channels in, 1022
dimyristoylphosphatidylcholine- and dilauroylphosphatidylethanolamine-based, 1076
dimyristoylphosphatidylcholine- and distearoylphosphatidylethanolamine-based, 1959
hydration of, deuterium NMR study of, 1429
proton-selective channels in, 1364
structural and dynamic properties of, 1505
Lipid-bound cholera toxin, orientation of, 935
Lipid domain structure, in membrane, reorganization of, by transmembrane peptide, 1959
Lipid-glass adhesion, in patch-clamped membranes, 75
Lipid membrane, two-dimensional Fourier transform ESR of, 1489
Lipid monolayers, receptor-doped, protein binding to, 305
Lipid-protein interface, side chain structure and dynamics at, 1380
Lipoprotein, low density, receptor, automated detection and tracking of, 1301
Liposomal membrane, lipid dynamics of, polyethylene glycol and, 1981
Load, mechanical, cardiac adaptation to, 953
Luciferase, bioluminescence of, high pressure and temperature and, 2107
Lymphocytes, membrane chloride conductance and capacitance in, 169
Lysozyme
acidic residues of, pK_a values of, 1180
crystallization kinetics of, 310
hydrated, enthalpy relaxation in, 249

M

Magnetic resonance diffusion tensor imaging, 259
Membrane
distance of, to acetylcholine receptor site, 674
distance relations in, fluorescence measurement of, 683
ion channels in, enzymatic modulation of, 1904
lipid domain structure of, reorganization of, by transmembrane peptide, 1959
patch-clamped, lipid-glass adhesion in, 75
red cell, lateral mobility of, deoxygenation and, 25
surfactant absorption by, 2024
Membrane chloride, conductance and capacitance of, in osmotic swelling, 1
Membrane protein, sequence and structure of, 2092
Membrane resistance, measurement of, 873
Membrane stretch, S-channel activation and, 46
Metal binding, potassium ion channel inactivation and, 1068
MgDNA fibers, mechanochemical study of, 810
Missed events, correction for, 191
Mitochondrial cationic channel, basic peptides and, 1887
Mobility, lateral, of red cell membrane protein, deoxygenation and, 25
Molecular distribution, in interphases, theory and simulation of, 561
Monomyristolein, temperature-composition phase diagram of, 573
Monte Carlo study
analysis of receptor-doped protein binding by, 305
of anomalous diffusion, 394
Mucus, cervical, antibody diffusion in, 508
Muscle fiber, striated, light diffraction ellipsometry by, 2051
Muscle shortening, myosin release from actin in, 778
Muscle sound frequency, muscle tension and, 1104
Myelin basic protein, zinc and phosphate interaction with, 1174
Myocardial fiber, virtual electrode effects in, 719
Myocardial oxygen exchange, basal, 789
Myocyte, cardiac, during hypoxia, confocal microscopy of, 942
Myofibril ATPase, kinetic mechanism of, 1542
Myoglobin
CO binding to, inhomogeneous to homogeneous transition in, 1612
hydrated, enthalpy relaxation in, 249
Myosin
head orientation of, 2039
release of from actin, in muscle shortening, 778

N

Na/K pump, transient currents mediated by, 912
Neural networks
pattern recognition and classification of images in, 1804
rational amino acid sequence design by, 335
Neutrophil
mechanical behavior of, cytochalasin B and, 2166
rolling of, over endothelium, 2202
Nicotinic acetylcholine receptor, conductance mutations of, 325
Noise analysis, of ion current through LamB channel, in *E. coli* outer membrane, 1388
Nucleic acids, vibrational analysis of, 225
Nucleus reticularis thalami neurons, modeling of, 978
Nystatin, erythrocyte dielectric spectroscopy and, 1244

O

Olfactory neurons, amiloride-insensitive cation conductance in, 299
Oligosaccharides, complex, dynamics of, 1267
Orthovanadate, skeletal muscle shortening velocity and, temperature and, 1554
Osmotic pressure, of bovine serum albumin solutions, pH and, 153
Osmotic rupture, freezing injury and, 532
Osmotic swelling, chloride membrane conductance and capacitance in, 169
Oxygen exchange, myocardial, basal, 789

P

Palmitoyl-oleoyl-phosphatidylcholine, kink motifs in, 2005
Paralysis, depolarization-induced, sodium ion channel and, 542, 543, 545
Pattern recognition, in image data set, 1804
Peptide
α-helical
hydrophobic, in lipid bilayers, 1364
structure of, at specific site, 1623
basic, mitochondrial cationic channel and, 1887
pH, bovine serum albumin solution osmotic pressure and, 153
Phage capsids, under pressure, 1269
Phase behavior, of dipalmitoyl derivatives of phosphatidylcholine and diacylglycerol, 1991
Phase diagram, of monomyristolein, 573
Phosphate, myelin basic protein interaction with, 1174
Phosphatidylcholine
in binary lipid domain, connectivity of, 1959
dipalmitoyl derivatives of, phase behavior of, 1991
interaction of, with calcium ion and diacylglycerol, 382
intrinsic pK_a values for, 1969
kink motifs in, 2005
mixed-chain
structure of, 1469
thermotropic properties of, 207, 1469
non-lamella-forming, phase behavior of, 1088
phosphatidylserine interactions with, ESR study of, 1515
Phosphatidylcholine bilayer, thermotropic phase and organization of, cholesterol and androstenol effects on, 741
Phosphatidylcholine-cholesterol bilayer, structure of, by energy minimization, 1457
Phosphatidylethanolamine
biotinyl, differential scanning calorimetry of, 31
intrinsic pK_a value of, 1969
Phosphatidylserine
interaction of, with calcium ion and diacylglycerol, 382
intrinsic pK_a value of, 1969
phosphatidylcholine interactions with, ESR study of, 1515
unilamellar vesicle fusion, diacylglycerol and hexadecane and, 366
Phospholipid
hexagonal-lamellar transition of, structural dimension of, 2127
neutral, at neutral pH, 1733
Phospholipid bilayer
curvature strain energy in, 1450
hydration in, cholesterol and, 763
Phospholipid domain, cholesterol suppression of, 120
Phospholipid membrane, water penetration of, 1213
Phospholipid monolayer
lateral diffusion in, 753
light-induced voltage changes in, 2066
surfactant protein SP-B in, 1137
surfactant protein SP-B plus SP-C in, 1158
surfactant protein SP-C in, 1149
Photoactivation, of rhodopsin, cysteine side chains in, 2085
Photobleaching, fluorescent
recovery from, bivalent surface kinetics and, 898
saturation effects in, 891

Photoelectric response, retinal reconstitution of, 2073
Photolysis
laser, rigor cross-bridge detachment and, 1115
ryanodine receptor channel activation and, 1879
Photoreceptors, cone, cGMP-gated channels in, 360
Photoregeneration, small flash rhodopsin bleaching and, 80
Photosynthetic antenna
energy migration and trapping in, 1580, 1597
energy transfer equilibrium in, 844
Photosynthetic bacterium, energy transfer in, time-resolved spectroscopy of, 437
Photosynthetic system, exciton migration in, 415
Pituitary cell, calcium fluctuation in, shapes of, 1697
Platelet, constitutents of, redistribuiton of, during activation, 1328
Polyelectrolytes, forces between, parametrization of, 962
Polyethylene glycol, liposomal membrane lipid dynamics and, 1981
Polypeptides, three-dimensional structure of, in solution, 1815
Pore, multi-ion, in potassium ion channel, 1929
Potassium, secretion of, by vestibular dark cell epithelium, 1939
Potassium current, voltage-dependent, serotonergic modulation of, 710
Potassium ion channel
assembly of, structural determinant for, 667
calcium-activated, cloned, lipid bilayers in, 1022
cysteine in, zinc modulation and, 694
forcing of, at various temperatures, 1844
gating current of, components of, 1011
inactivation of, allosteric modulation of, 1068
ionic and gating currents of, 996
lethal subunits of, rescue of, 179
mutant, signature sequences of, 1061
pore nature in, 1929
Potassium-like channel, Brownian dynamics of, 1028
Protein
globular
intermediate density states in, 454
structural transitions in, 467
hydrated, enthalpy relaxation in, 249
membrane, sequence and structure of, 2092
Protein aggregate, structure of, simulations of, 1274
Protein binding, to receptor-doped lipid monolayers, 305
Protein folding
helix and hydrophobic core formation during, 40
simulated molecular evolution and, 275
Protein P22
denatured states of, 1631
phage capsides of, under pressure, 1269
Protein side chains, rotamer elimination and, 1335, 1623
Protein-solvent interface, global model of, 601
Protein SP-B, in phospholipid monolayer, 1137
Protein SP-B plus SP-C, in phospholipid monolayer, 1158
Protein SP-C, in phospholipid monolayer, 1149
Protein unfolding
fluorescent monitoring of, 482
multidimensional spectrophotometry of, 516
Proton-selective channels, in lipid bilayers, 1364

R

RBL-2H3 cell, structure and activation dynamics of, 1717
Reaction rate, enhancement of, at cell surface receptors, 588
Receptors, on cell surface, reaction rate enhancement of, 588
Red cell membrane skeleton, bidirectional transmembrane signaling and, 1271
Retinal, photoelectric response reconstitution with, 2073
Rhodopsin
deuterium-hydrogen exchange of, 1129
photoactivation of, cysteine side chains in, 2085
small flash bleaching of, photoregeneration and, 80
Riboprotein particles, modeling of, 1777
Ribose binding protein, of *E. coli*, signal sequences of, 1604
Rigor cross-bridge detachment, kinetics of, 1115
RNA, large, modeling of, 1777
Rotamer elimination, applied to protein side chains and spin glasses, 1335, 1623
Ryanodine receptor, caged calcium and, 1739, 1879

S

S4 mutants, gating currents of, 345
Sarcoplasmic reticulum, calcium ATPase phosphorylation and, 1653, 1655
Saturation effects, in photobleaching, 891
Saxitoxin, cloned sodium channel block by, 1353
Saxitoxin binding site, model of, 1
Scanning concentration correlation spectroscopy, with confocal laser microscope, 502
S-channel, activation of, by FMRFamide or stretch, 46
Sciatic nerve, cavitation stimulation of, 133
Serotonin, voltage-dependent potassium current modulation by, 710
Shaker, K^+ channels in, 1929
Shear rate, fibrinogen occupancy and, 2190
Simian virus, T antigen structure of, by atomic force microscopy, 293
Skeletal muscle
chloride channel of, low conductance of, 149
contractile activation of, thermal stress and, 1531, 1554
shortening velocity of, orthovanadate and, 1554
tension of, muscle sound frequency and, 1104
Skeletal muscle fiber, study of, with double vaseline gap voltage clamp, 700
Skeletal ryanodine receptor channel, caged calcium and, 1978
Skeletal troponin, inhibition of, 2062
Sodium ion channel
batrachotoxin-modified, permeation of, through zinc-induced substate, 654
cloned, saxitoxin block of, 1353
depolarization-induced paralysis and, 542, 543, 545
gating of, 1853, 1864
tetrodotoxin and saxitoxin binding site of, model of, 1
Sodium/potassium pump, transient currents mediated by, 912
SP-B protein, in phospholipid monolayer, 1137
SP-B protein plus SP-C protein, in phospholipid monolayer, 1158
SP-C protein, in phospholipid monolayer, 1149
Spider silk, atomic force microscopy of, 1209
Spin glasses, rotamer elimination and, 1335
Staphylococcal nuclease, folding of, helix and hydrophobic core formation during, 40
Structural transitions, in globular protein, 467
Superoxide dismutase, conformational dynamics of, 1185
Surface binding kinetics, bivalent, 898
Surfactant, membrane absorption of, 2024

T

T antigen structure, by atomic force microscopy, 293
Tannic acid, neutral lipid bilayer adhesion and, 1943
Teaching biophysics, to general audience, 2217
Temperature-composition phase diagram, of monomyristolein, 573
Tension
alamethicin switching and, 71
mechanical, cytoskeletal mechanics and, 2181

Tensor imaging, magnetic resonance, 259
Tetrodotoxin binding site, model of, 1
Thermal response, of laser-excited biomolecules, 430
Thermal stress, skeletal muscle contractile activation and, 1531, 1554
Thermotropic phase behavior
of mixed-chain phosphatidylcholines, 207
of non-lamella-forming phosphatidylcholines, 1088
of phosphatidylcholine bilayers, cholesterol and androstenol and, 741
Thioredoxin, tryptophan dynamics of, 2111
Thioridazine, membrane absorption of, 2024
Thylakoid lipids, permeability and electrical properties of, 1404
Tobacco mosaic virus, phosphorus magic angle spinning NMR and transversal relaxation of, 1197
Topoisomerase, chromosome condensation kinetics and, 827
Transfer equilibrium, in photosynthetic antennae, 844
Transmembrane potential, during stimulation pulse, of heart, 719
Troponin, skeletal, inhbition of, 2062 ***trp* represser dimers**, interactions between, 1167
Tryptophan, orientations of, in gramicidin, 14
Tryptophan side chain
α-helical structure of, 1623
in thioredoxin, 2111

U

Unilamellar vesicles, large, of dipalmitoylphosphatidylcholine, ethanol interaction with, 729

V

Valine, structure and dynamics of, 1380, 1823
Vestibular dark cell epithelium, potassium secretion by, 1939
Vibrational modes, correlation field splitting of, 1505
Virtual electrode effects, in myocardial fiber, 719
Viscoelastic moduli, of actin networks, measurement of, 2210
Voltage, light-induced changes in, in phospholipid monolayer, 2066
Voltage clamp, with double vaseline gap chamber, skeletal muscle fiber study with, 700
Voltage-dependent potassium current, serotonergic modulation of, 710
Voltage-gated calcium current, calcium-dependent inactivation of, 1051

W

Water penetration, of phospholipid membrane, 1213

X

***Xenopus* oocytes**, calcium channels of, 1833, 1895

Z

Zinc, myelin basic protein interaction with, 1174
Zinc-induced substate, Na^+ permeation through, batrachotoxin and, 654
Zinc modulation, of K^+ channel, cysteines and, 694, 1068
Zinc superoxide dismutase, conformational dynamics of, 1185